PT330/331

User's Guide

PREFACE

Every effort has been made to ensure that the information in this document is complete, accurate, and up-to-date. The manufacturer assumes no responsibility for the results of errors beyond its control. The manufacturer also cannot guarantee that changes in software and equipment made by other manufacturers and referred to in this guide will not affect the applicability of the information in it. Mention of software products manufactured by other companies does not necessarily constitute endorsement by the manufacturer.

While all reasonable efforts have been made to make this document as accurate and helpful as possible, we make no warranty of any kind, expressed or implied, as to the accuracy or completeness of the information contained herein.

The most up-to-date drivers and manuals are available from:
http://www.okiprintingsolutions.com

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<PT331>
As an Energy Star Program Participant, the manufacturer has determined that this product meets the Energy Star guidelines for energy efficiency.

This product complies with the requirements of the Council Directives 2004/108/EC (EMC), 2006/95/EC (LVD) and 2009/125/EC (ErP) as amended where applicable on the approximation of the laws of the member states relating to electromagnetic compatibility, low voltage and energy using products.

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT FOR UNITED STATES USERS

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

NOTICE TO CANADIAN USERS

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

NOTICE

The contents of this manual may be revised without prior notice.

No part of this manual may be reproduced in any form without permission.

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ENVIRONMENTAL INFORMATION

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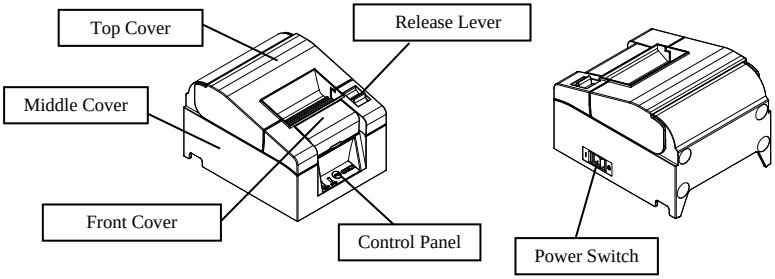
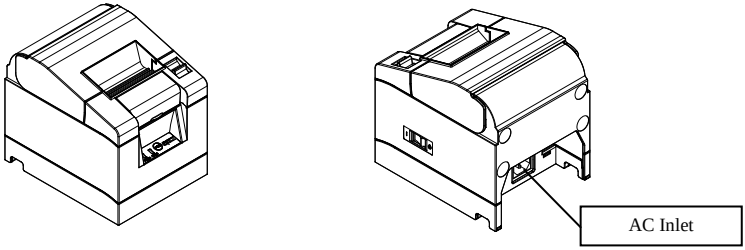
1. Appearance and Name of Components

1-1. Names of Components

Standard Model

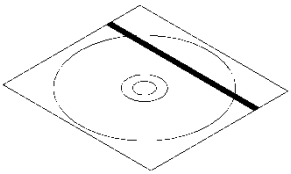


Built-in Power Supply Model

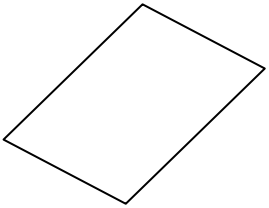


- Top Cover
  Opens to replace paper.
- Release Lever
  Used for opening the top cover.
- Power Switch
  Turns the printer power ON/OFF.
- Control Panel
  Contains switches for operating the printer and LEDs that indicate the printer status.
- Front Cover
  This can be removed in case of cutter jam or when the top cover does not open.
- AC Inlet
  Plug in the AC power supply cable here.

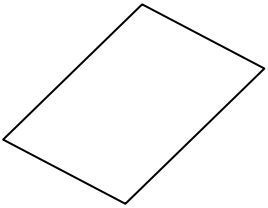
1-2. Package Contents



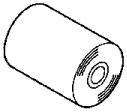
CD



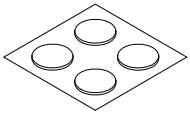
Instruction sheet



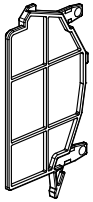
Safety warranty sheet



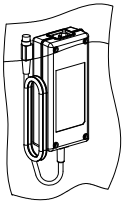
Thermal Paper



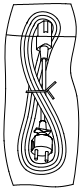
Rubber Feet
(For vertical installation)



58mm Width Separator



AC Adapter
(Standard Model)



Power cable

2. AC Adapter

Only use the AC adapter specified below.

Item	No.	Remarks
AC Adapter	KA02951-0120	Input : 100 to 240V AC, 50-60Hz Output : DC24V±5%,1.5A

⚠ Caution: Only use authorized AC adapters.
⚠ Caution: Do not use any other bundled AC adapter other than designed for this printer.

3. Paper Specifications

Only use the thermal paper roll specified below.

3-1. Paper Width

- 80mm paper $80mm^{0}_{-1.0}$
- 58mm paper $58mm^{0}_{-1.0}$

3-2. Paper Thickness

- 65 - 85µm

3-3. Paper Roll

- Outside diameter: φ83mm or less
- Core diameter: φ12±0.5mm (inside) / φ18±0.5mm (outside)
- Printing surface: outer surface of the roll
- Treatment of end of paper: The roll paper must not be glued to the core. The end of the paper must also not be folded back.

⚠ **Caution: Do not use rolls that have rough sides or sides from which pieces of paper extrude. Such paper may cause unstable paper feeding, resulting in printer trouble.**

3-4. Recommended Thermal Paper

Manufacturer	Product Name	Quality Characteristic	Paper Thickness	Density
Oji Paper Co., Ltd.	PD160R	Monochrome thermal paper (high-grade preservation type)	75μm	100%
	PD190R	Monochrome thermal paper (mid-grade preservation type)	75μm	100%
Nippon Paper Industries Co., Ltd.	TF60KS-E	Monochrome thermal paper (normal type)	75μm	100%
	TP60KS-F1	Monochrome thermal paper (mid-grade preservation type)	75μm	100%
	TF50KS-E	Monochrome thermal paper (normal type)	65μm	100%
	TF62KS-E	Monochrome thermal paper (normal type)	85μm	100%

⚠ Caution: Using non-recommended paper may cause printer head damage, bad printing quality, etc.

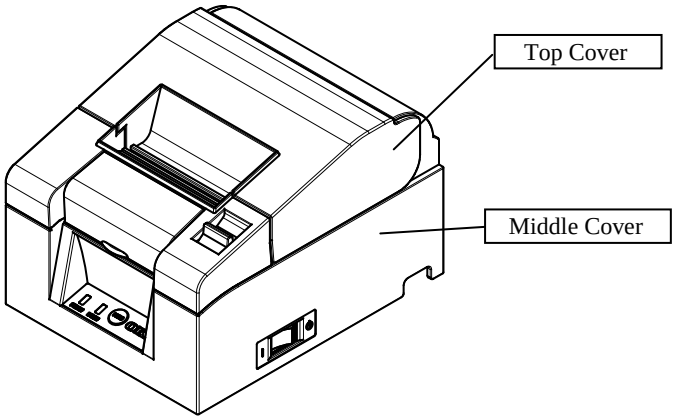
4. Preparation

No printer cable is provided with the product. Obtain a printer cable suitable for the product interface. If you have any question, consult your dealer. Before connecting or disconnecting cables, make sure of the following:

(1) The power to the printer and all other devices connected to the printer is turned off.

(2) The AC adapter power cable has been unplugged from the outlet.

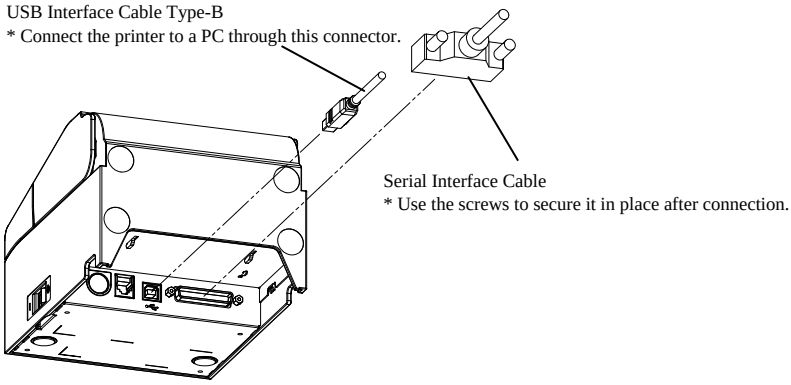
⚠ **Caution: When connecting cables or moving the printer, hold the middle part of the printer cover on both sides. Holding the top cover may cause it to open.**



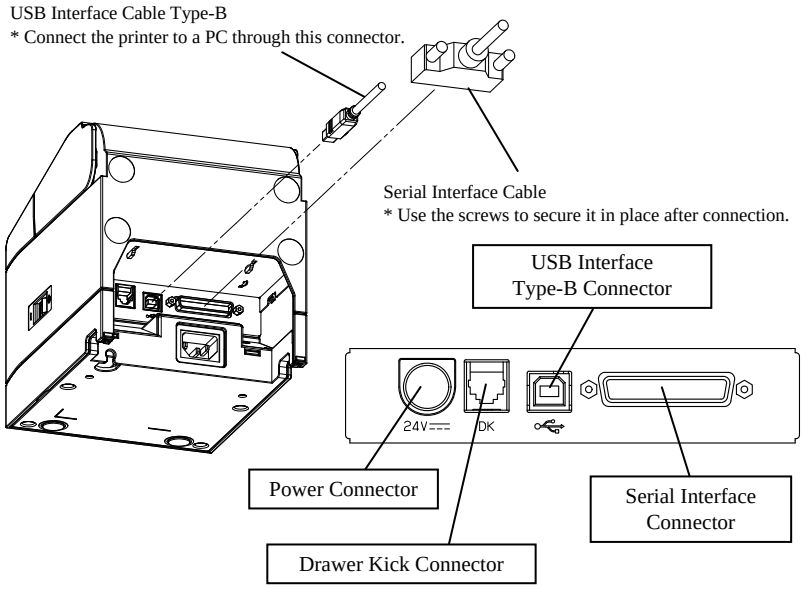
4-1. Connecting the Interface Cable (to the printer)

4-1-1 Printers with serial and USB interfaces

Standard Model


USB Interface Cable Type-B
* Connect the printer to a PC through this connector.
Serial Interface Cable
* Use the screws to secure it in place after connection.

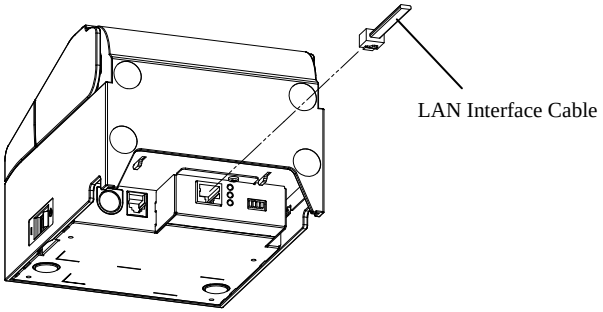
Built-in Power Supply Model


USB Interface Cable Type-B
* Connect the printer to a PC through this connector.
Serial Interface Cable
* Use the screws to secure it in place after connection.
USB Interface Type-B Connector
24V
DK
Power Connector
Serial Interface Connector
Drawer Kick Connector

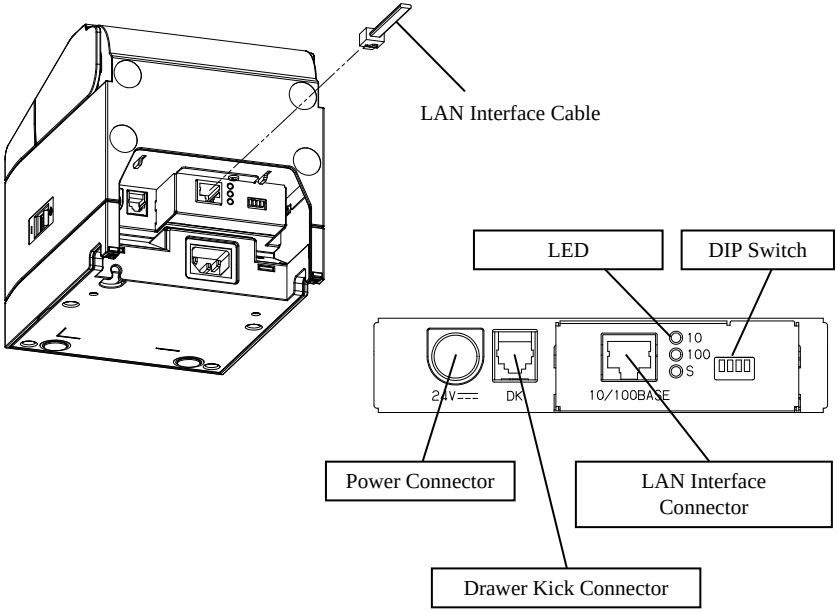
⚠ **Caution: Do not connect both the serial and USB interfaces at the same time.**

4-1-2 Printers with LAN interfaces

Standard Model



Built-in Power Supply Model



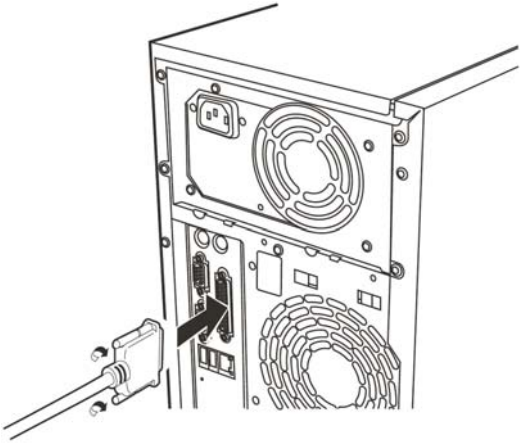
⚠ **Caution: Do not touch the DIP switches during normal use. This may change the network settings, disabling normal printing.**

⚠ **Caution: If the device is installed vertically, the LAN cable may be un-usable due to its shape. Please check before installing.**

4-2. Connecting the Interface Cable (to the PC)

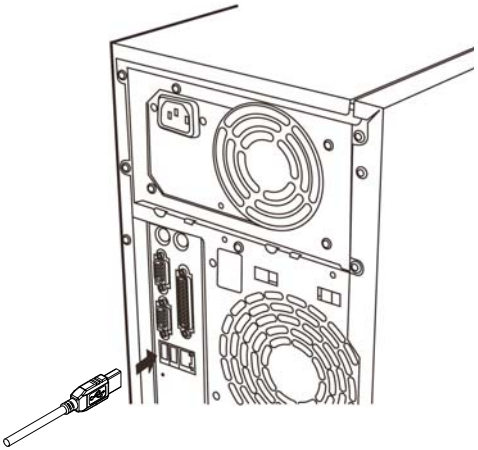
4-2-1 Serial Interface

(1) Connect the connector of serial interface cable to the serial port on the computer as shown in the figure.



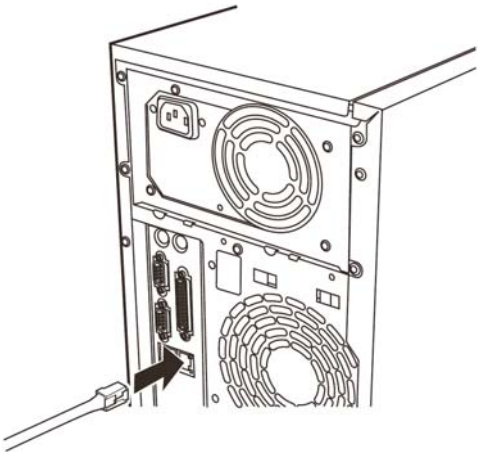
4-2-2 USB Interface

(1) Connect the connector of USB interface cable to the USB port on the computer as shown in the figure.



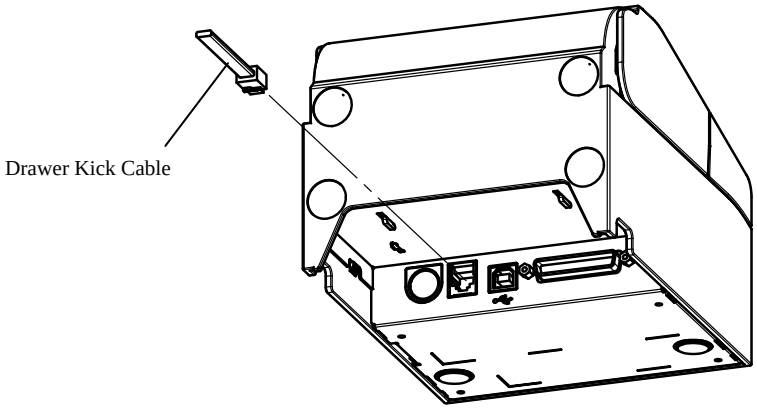
4-2-3 LAN Interface

(1) Connect the connector of LAN interface cable to the LAN port on the computer as shown in the figure.

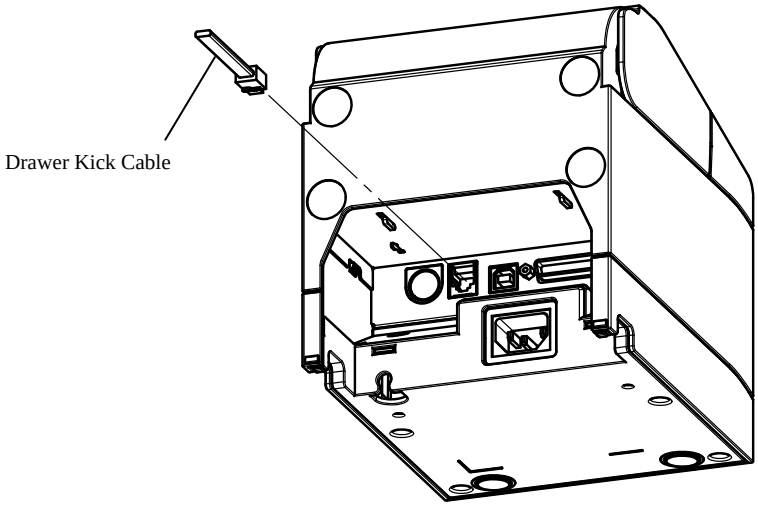


4-3. Connecting the Drawer Kick Cable

Standard Model



Built-in Power Supply Model

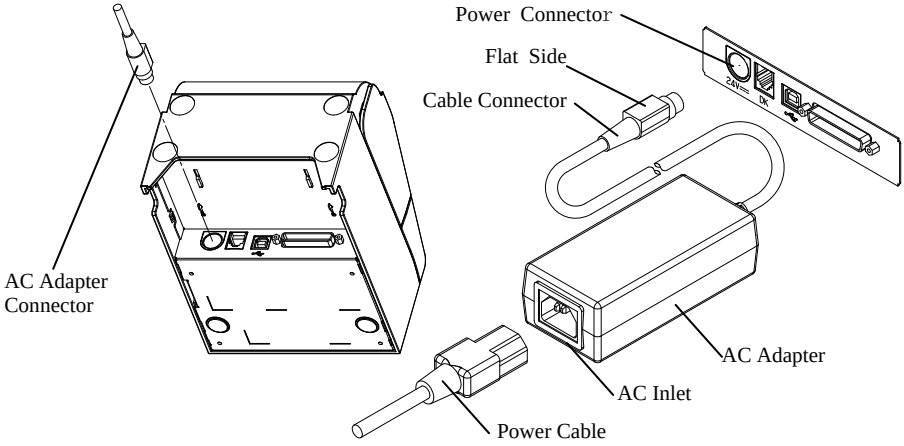


⚠ **Caution: This product uses a special-purpose modular connector for the cash drawer. Do not attempt to use other types of connectors such as public telephone connectors.**

4-4. Connecting the AC Adapter and Cable

Standard Model

(1) Connect the cable connector of the AC adapter to the power connector.

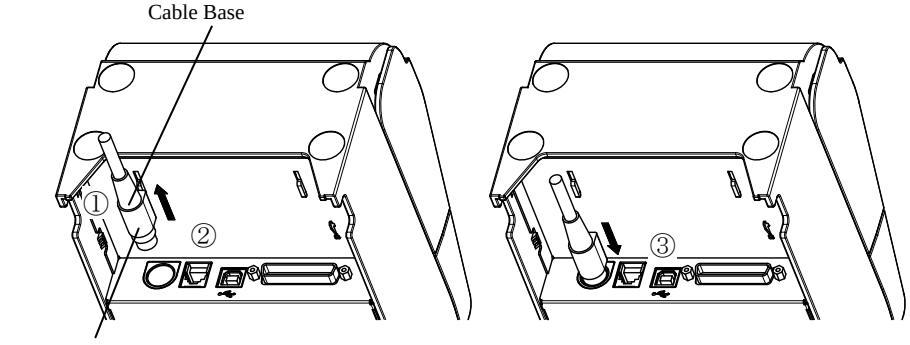


⚠ **Caution: Before connecting the AC adapter, turn off the power switches on the printer and all the devices connected to the printer. Also, remove the plug of the AC adapter power cable from the outlet.**

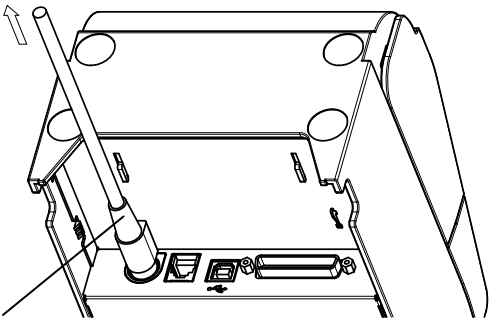
⚠ **Caution: Use the specified AC adapters.**

⚠ **Caution: Perform the adapter connection with the device placed vertically for easy operation.**

⚠ **Caution: As the connector is clipped in place after insertion in order to prevent it from falling off, when performing insertion, (1) grip the cable base with one hand, (2) slide the outer part of the connector upwards with the other hand (3) and push in until it locks into place.**

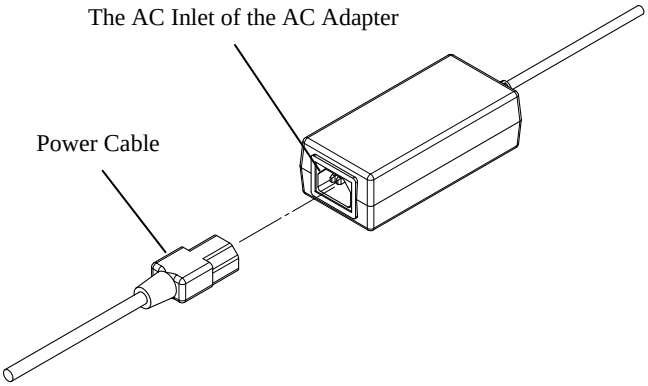


(2) Confirm that the cable is locked in place by gently pulling on the cable base after connection.



Cable Base

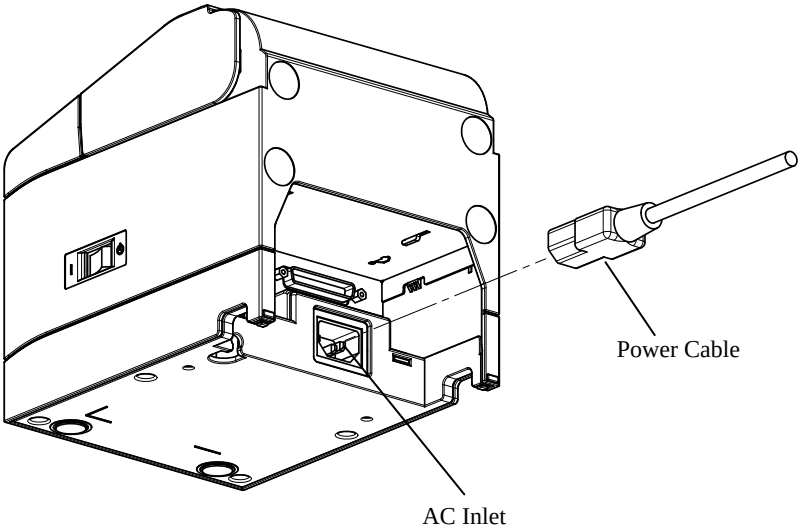
(3) Connect the power connector to the AC inlet of the AC adapter.



(4) Insert the plug of the power cable into the outlet.

Built-in Power Supply Model

(1) Connect the power connector to the AC inlet.



⚠ **Caution: Before connecting the power cable, turn off the power switches on the printer and all the devices connected to the printer. Also, remove the plug of the power cable from the outlet.**

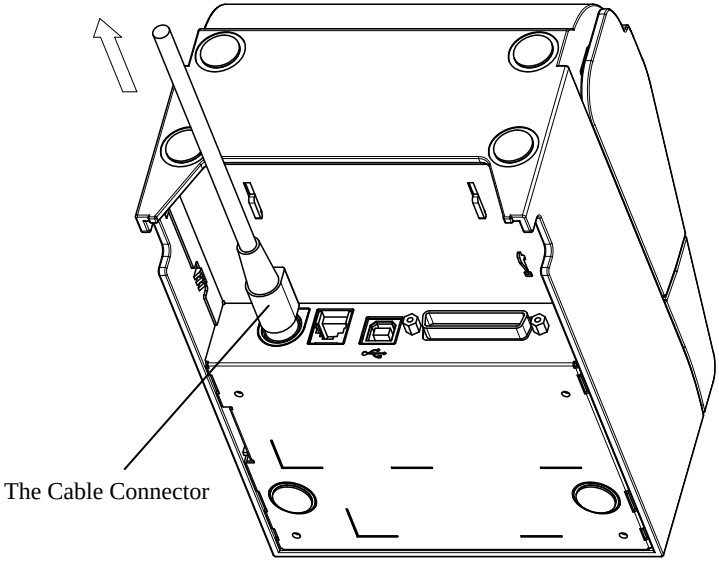
⚠ **Caution: Perform power cable connection with the device placed vertically for easy operation.**

⚠ **Caution: If the device is installed vertically, use a right-angled power cable.**

(2) Insert the plug of the power cable into the outlet.

4-5. Removing the AC Adapter

To remove the cable of the AC adapter, pull it while gripping the connector section on the cable side as shown in the following figure. The lock is released, making it easy to remove. Forcibly pulling the cable will damage the connector section.



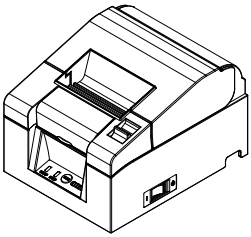
⚠ **Caution: Before removing the AC adapter, turn off the power switches on the printer and all the devices connected to the printer. Also, remove the plug of the AC adapter power cable from the outlet.**

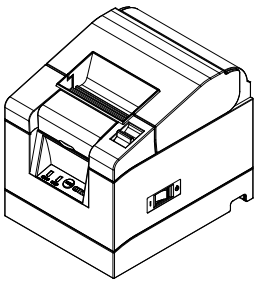
⚠ **Caution: Perform adapter removal with the device placed vertically for easy operation.**

4-6. Installing the Printer

Both horizontal installation (the paper exit is on the topside) and vertical installation (the paper exit is on the front side) orientations are available.
In the case of vertical installation, attaching the optional splash-proof cover can protect the printer from water.
The printer can also be fixed to the wall by using the optional wall-hanging bracket.

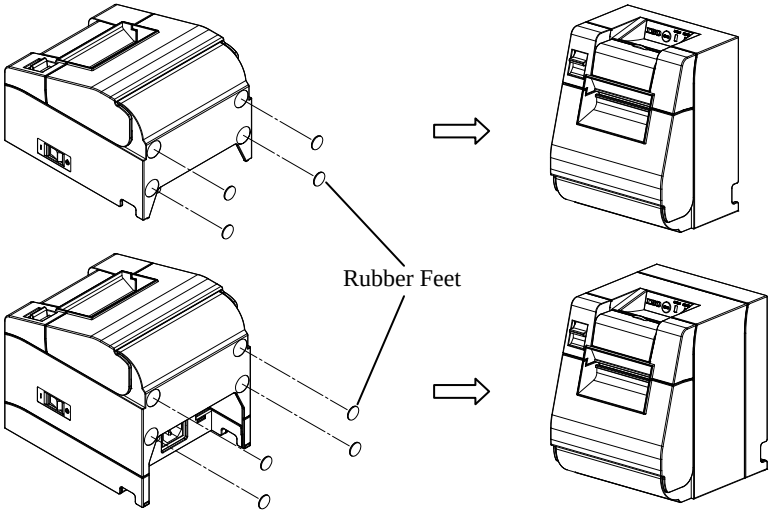
Horizontal Installation





Vertical Installation

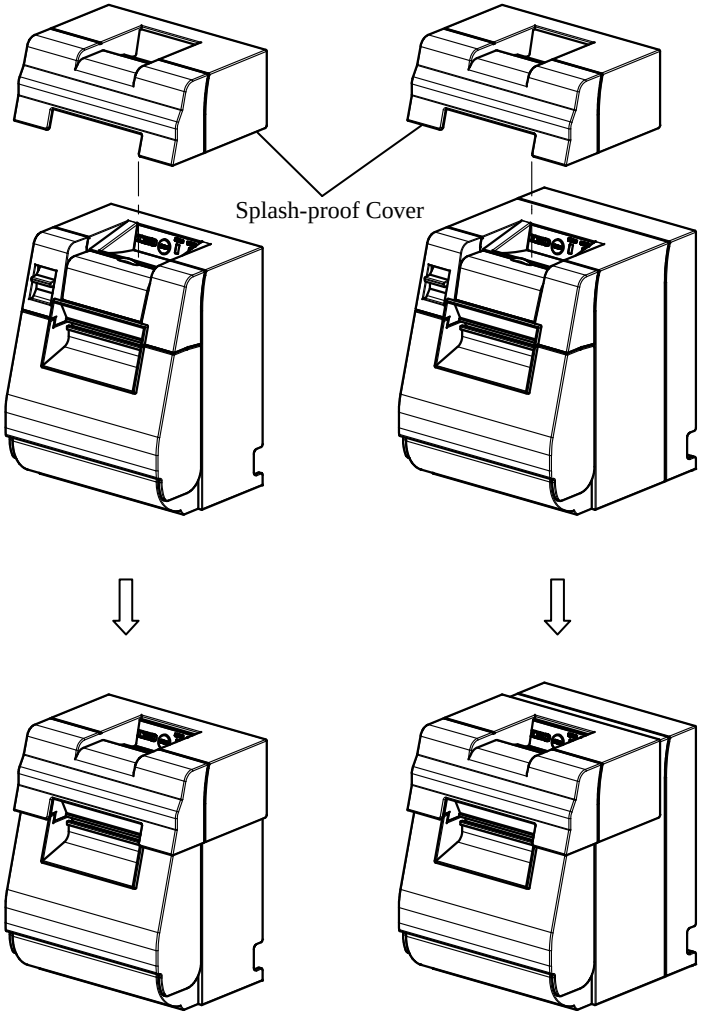
If the printer is installed vertically, stick the rubber feet (included in the package) into the round indents on the printer rear cover.



⚠ **Caution: Before sticking on the rubber feet, wipe off any dirt inside the indents.**

Splash-proof Cover (Optional)

Mount the splash-proof cover at the top when the printer is installed vertically.

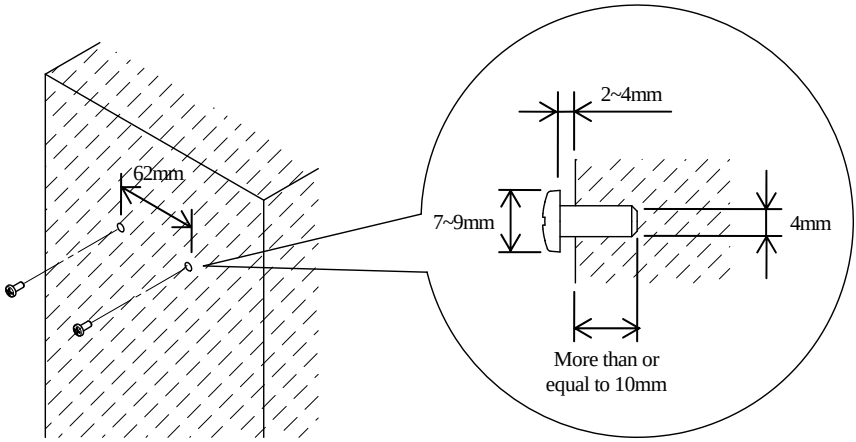


⚠ **Caution: The splash-proof cover is used only for vertical installation.**

Wall Hanging Bracket (Optional)

To fix the printer to a wall, follow the procedures below:

(1) Mount two metal screws (thread diameter: Φ4, head diameter: Φ7) on the wall, spaced 62mm apart in a horizontal line, such that the length of each screw entering the wall is at least 10mm and the length protruding outside is 2-4mm.

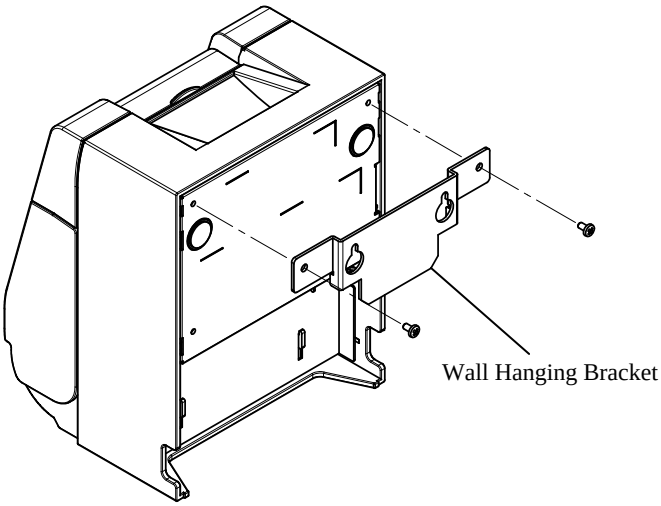


⚠ **Caution: In order to firmly fix the printer, mount the wall hanging bracket onto a wooden, concrete or metal wall. It is recommended that the wall thickness should be 10mm or more.**

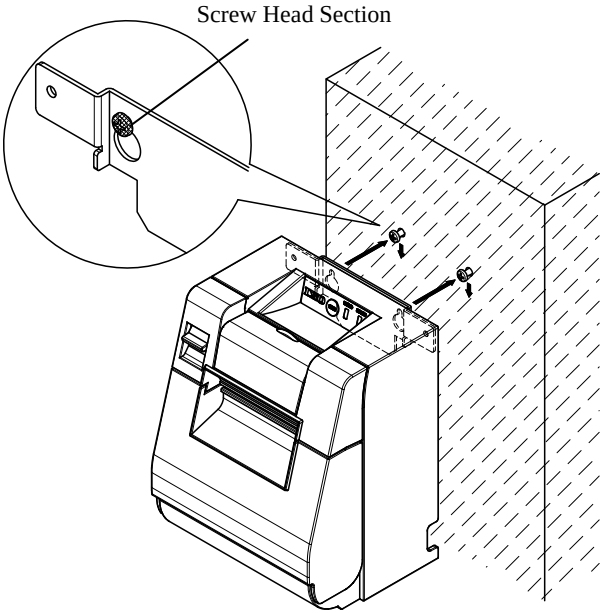
Use metal screws.
The screws mounted on the wall are required to have a pull-out strength of 150N (15.3kgf) or more.

⚠ **Caution: The wall hanging bracket can be used only for printers that use an external AC adapter (Standard Model).**

(2) Attach the wall hanging bracket to the printer and fix it securely with the enclosed screws.



(3) Align the holes of the wall hanging bracket with the screws mounted to the wall and hang the printer securely.

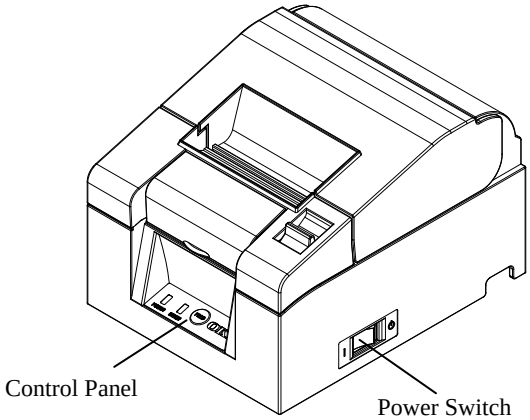


4-7. Power On

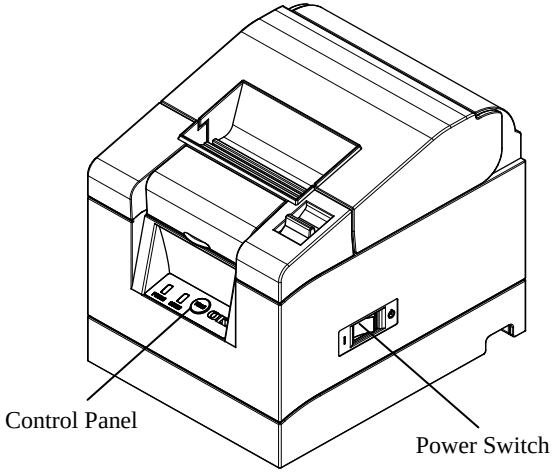
(1) Connect to the power cable according to 4-3 above.

(2) Turn on the power switch at the side of the printer.
After turning the power on, the POWER LED on the control panel will light up.

Standard Model



Built-in Power Supply Model



4-8. Installing the Printer Software

Refer to the "Installation Guide"(*1) in the enclosed CD for instructions on installing the printer driver and utility software.

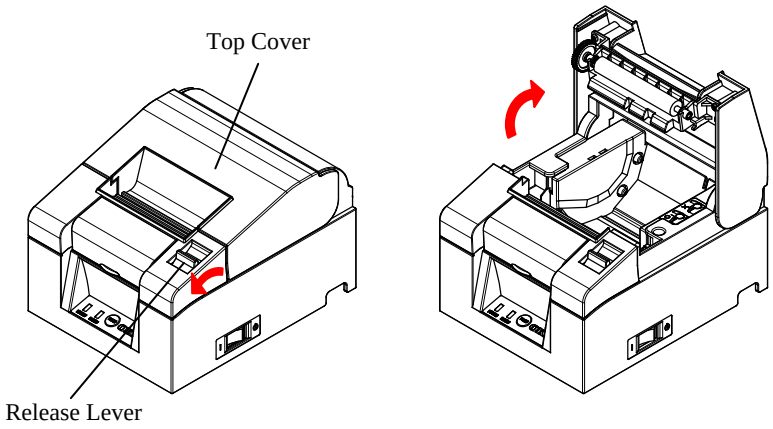
*1: \Manuals\PT330-331_InstallGuide1_en.pdf

The "Installation Guide" can also be viewed by loading the CD in your PC's CD drive and selecting "Manuals" on the "Setup" screen that appears.

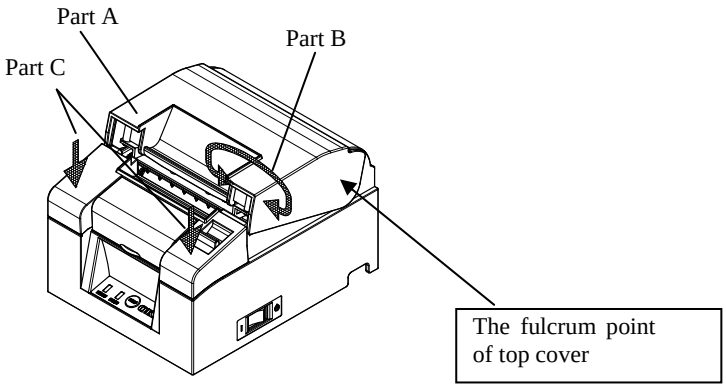
5. Inserting Paper

5-1. Opening the Top Cover

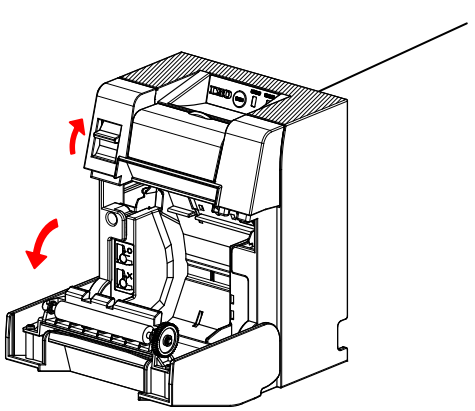
(1) Pull the release lever in the direction of the arrow, and then open the top cover.



⚠ **Caution: Lift the cover until it is vertical so that it will stay open.**



⚠ **Caution: To open the cover, use either side of part C to hold the printer steady and use part A or part B to lift the cover. To prevent your fingers being pinched, please do not touch the area around the top cover hinge.**



⚠ **Caution: When using printer vertically, steady the front part of the printer (shaded part in the above picture) to open the top cover.**

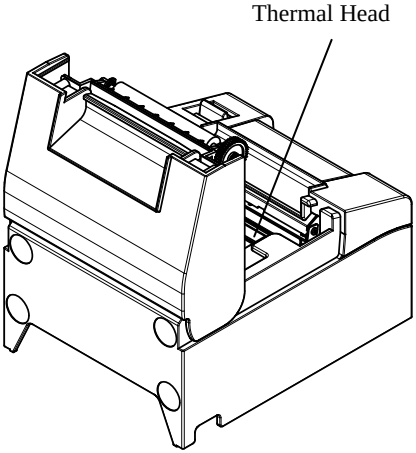
5-2. Paper Width Setting (Width: 58mm / 80mm)

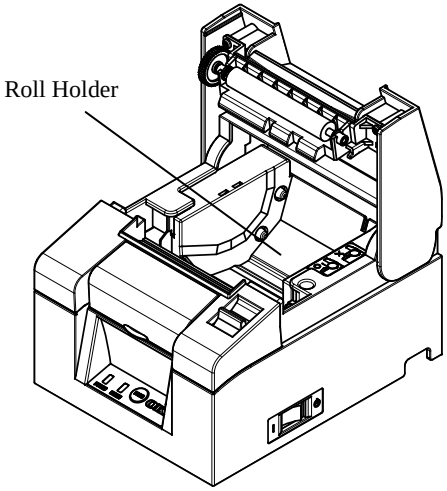
As the factory setting for paper width is 80mm, follow the instructions in "5-3. Setting the Paper" to set the paper roll when using 80mm paper.
When using 58mm paper, first attach the separator in accordance with the instructions in "5-2-1. Attaching the Separator" and then set the paper roll.

Also, follow the instructions in "9-2. Changing the Setup" to set the "Paper Width" in the printer setup to "58mm/35columns" or "58mm/32columns".

⚠Caution: Do not switch from the 58mm width paper to 80mm width paper when printing is in progress. When using narrow-width paper, a part of the thermal head may directly come in contact with the platen roller without any paper present. This causes the head to wear down, resulting in poor printing quality.
In addition, as the cutter blade also works on sections without paper, the cutter blade may wear down, resulting in a bad cut.

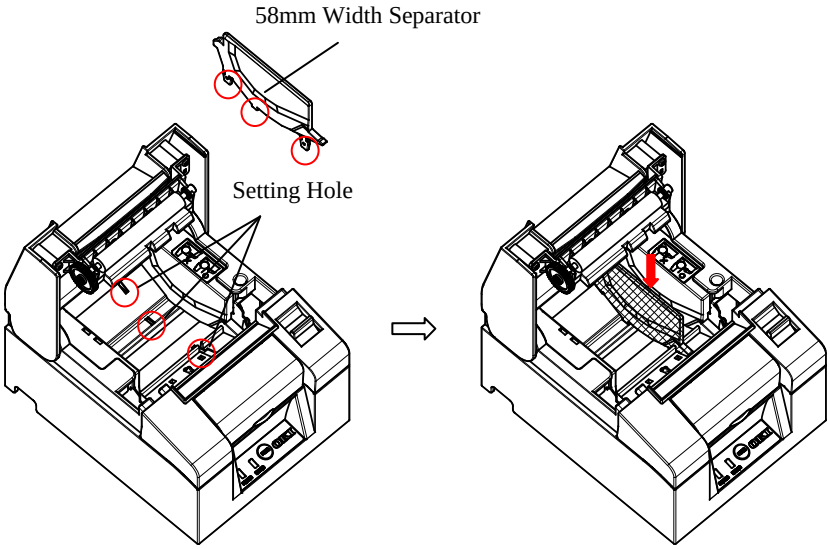
⚠Caution: As the thermal head may be damaged by static electricity, do not touch the thermal head except for cleaning.





5-2-1 Attaching the Separator

(1) Align the three lugs of the supplied 58mm width separator with the corresponding holes on the printer body, then push it into place.



⚠ **Caution: Push the plate until it locks with a clicking sound and confirm that the top side of the separator is horizontal.**

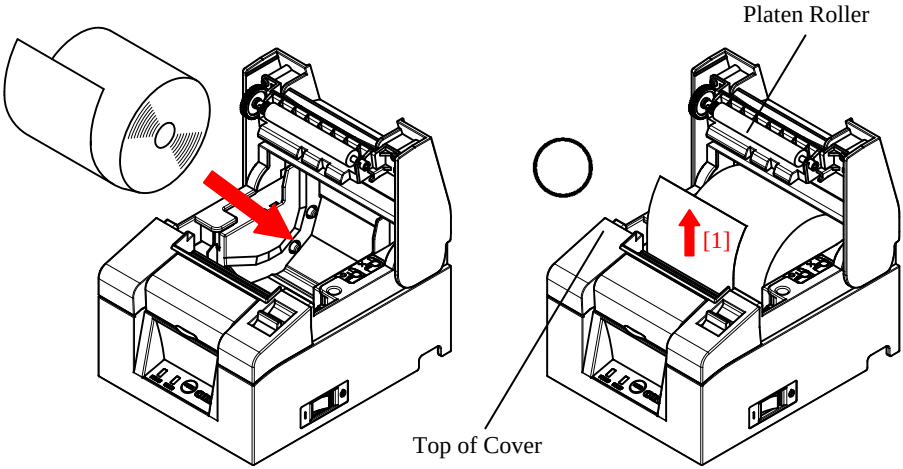
⚠ **Caution: When moving the separator follow the instructions in the Special Mode section to set the paper width and align it with the printing area.**
(Refer to 9 Special Mode: 9-2. Changing the Setup.)

5-3. Setting the Paper

(1) In the case of a new roll of paper, remove the glued portion and tape on the paper roll.
When replacing the roll paper, first remove the old paper core.

⚠ **Caution: Since the glued portion of the paper should not be printed on, remove about one turn (about 30 cm) of the roll paper from the beginning so that none of the remaining paper has glue on it. Any adhesive or other matter remaining from the glue may adhere to the thermal head and cause a problem, such as voids on printouts. Therefore, do not forget to remove the glued portion of the paper.**

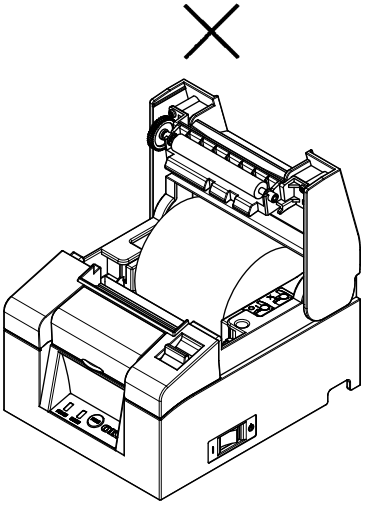
(2) After inserting the new roll of paper with the orientation shown, pull the end of the paper in the direction indicated by the arrow [1].



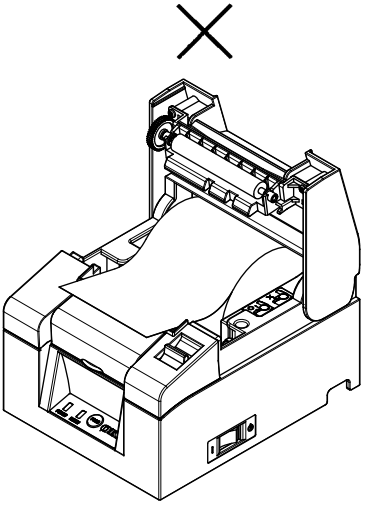
⚠ **Caution: Pull the end of the paper so that it passes over the top of the cover.**

⚠ **Caution: Do not damage or dent the platen roller.**
Dents on the platen roller will cause gaps in the printing and/or line feed failure.

⚠ **Caution: Setting the paper as shown in the following figures may cause paper or printing jams.**

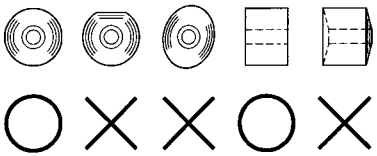


The paper does not pass over the top of the cover.



The paper has been set incorrectly.

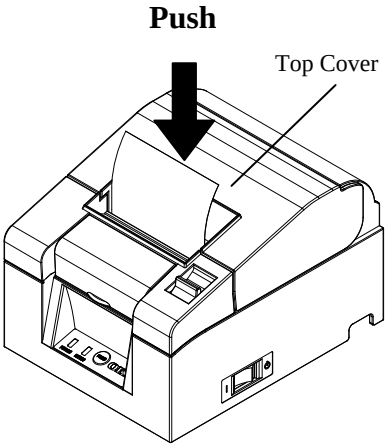
⚠ **Caution: Do not use deformed roll paper. Using rolls such as those shown below may cause trouble such as paper or printing jams.**



⚠ **Caution: If the roll paper is loose (slack) as shown below, remove the slack before using the roll. Using without removing the slack may cause paper or printing jams, or result in failure to detect the paper near end condition.**

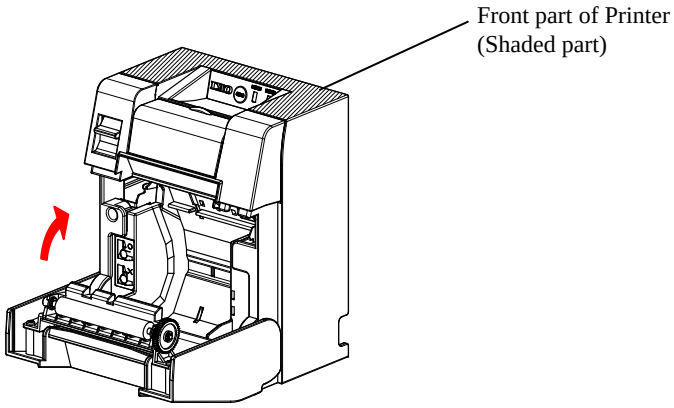
5-4. Closing the Top Cover

Set the paper correctly and carefully close the top cover.



⚠ **Caution: Set the paper correctly. Closing the top cover while the paper is skewed may cause a paper jam or messy printing.**

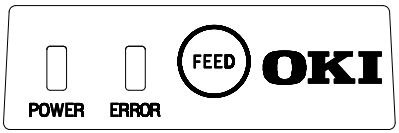
⚠ **Caution: When closing the top cover, close it securely by pressing around the central position (shown by the arrow in the figure) until you hear a clicking sound. If the cover has not locked into place, the printer may not function.**



⚠ **Caution: When the printer is mounted vertically, use the front of the printer (shaded part in the above picture) to hold it steady when opening the top cover.**

6. Control Panel

6-1. Control Panel



POWER LED(●)

If the power switch is turned on and the printer is supplied with power, this LED will light up.

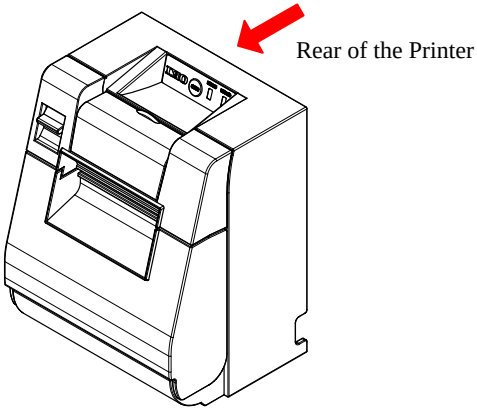
ERROR LED(●)

This LED lights up or blinks to indicate an error.

FEED Button

Pressing this button once causes the printer to feed the paper by an amount equivalent to one line.

Holding it down feeds the paper continuously.

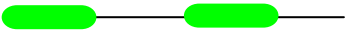


⚠ **Caution: When the printer is mounted vertically, always hold the rear of the printer when you press the FEED button to keep the printer steady and prevent it from falling over.**

6-2. Error Indications

Recoverable errors

Error State	LED Lamp	Blinking Pattern
No paper Paper end	POWER(●)	Constantly on
	ERROR (●)	Constantly on
Cover open	POWER(●)	Constantly on
	ERROR (●)	Constantly on
Cutter jam	POWER(●)	Constantly on
	ERROR (●)	Constantly on

Error State	LED Lamp	Blinking Pattern
Paper near end	POWER (●)	Constantly on
	ERROR (●)	
Head hot	POWER (●)	
	ERROR (●)	● Remains unchanged.

Unrecoverable errors

Error State	LED Lamp	Blinking Pattern
Internal error	POWER(●)	——●—●—
	ERROR(●)	●————
		Repetition of two blinks of the ● lamp and one blink of the ● lamp
Head not installed	POWER(●)	——●—●—●—
	ERROR(●)	●—————
		Repetition of three blinks of the ● lamp and one blink of the ● lamp
Low voltage	POWER(●)	——●—●—●—●—
	ERROR(●)	●——————
		Repetition of four blinks of the ● lamp and one blink of the ● lamp
Over voltage	POWER(●)	——●—●—●—●—●—
	ERROR(●)	●———————
		Repetition of five blinks of the ● lamp and one blink of the ● lamp
Watchdog timer error	POWER(●)	——●—●—●—●—●—●—●—●—
	ERROR(●)	●————————————
		Repetition of eight blinks of the ● lamp and one blink of the ● lamp

7. Paper Jam Prevention and Removal

7-1. Paper Jam Prevention

Do not touch the paper while it is coming out or before cutting is complete. Pressing or pulling the paper with your hand while it is coming out may cause a paper jam, bad cut, or bad line feed.

7-2. Paper Jam Removal

In case of a paper jam, remove the paper as follows:

(1) Turn off the power switch to disconnect the printer from the power.

(2) Pull the release lever towards you, and then open the top cover.
If the top cover does not open, refer to the instructions in "7-3. If the Top Cover Does Not Open" to remove the cutter jam.

(3) Press the printer and remove the jammed paper.

⚠ **Caution: When removing paper, remove the paper slowly without pulling it forcibly.**

⚠ **Caution: As the thermal head may be damaged by static electricity, do not touch the thermal head. Also, do not touch the thermal head as it may still be hot after printing.**

(4) Set the paper correctly and carefully close the top cover.

⚠ **Caution: Set the paper correctly. Closing the top cover while the paper is skewed may cause a paper jam or messy printing.**

⚠ **Caution: When closing the top cover, close it securely by pressing around the central position until you hear a clicking sound. If the cover has not locked into place, the printer may not function.**

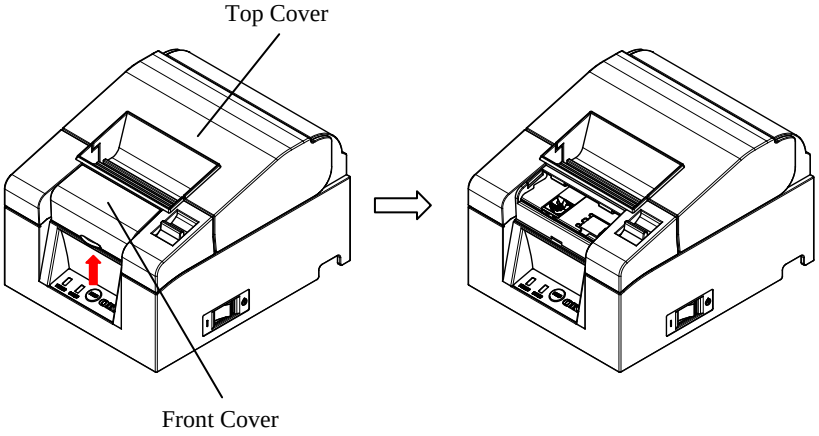
(5) Turn on the power switch . Also, at this time confirm that the ERROR lamp has turned off.

⚠ **Caution: As printing data cannot be received while the ERROR lamp is on, firmly close the top cover.**

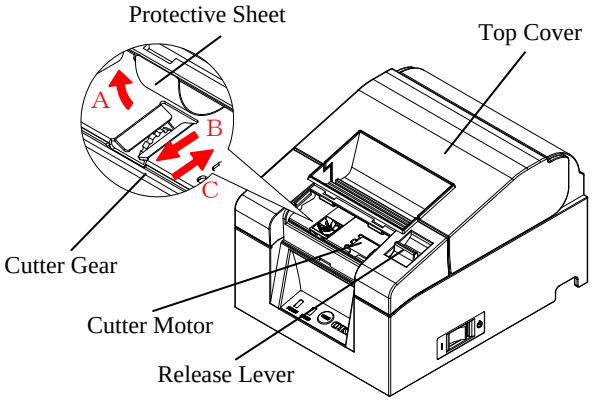
7-3. If the Top Cover Does Not Open

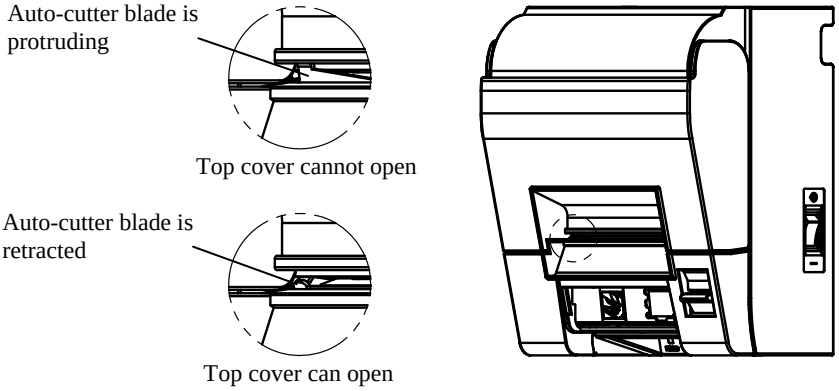
When the printer has stopped with the cutter blade exposed due to some abnormality such as a paper jam, the top cover will not open.
In such a case, instead of opening it forcibly, perform the following steps:

(1) Turn off the power switch to disconnect the printer from the power.
(2) Turn the power on again. This causes the cutter to operate and may clear the paper jam.
(3) Pull the release lever toward you to check whether the top cover opens. If so, turn the power off again and follow the instructions from step (6) to clear the paper jam.
If the top cover still cannot be opened after the power is turned on, turn the power off again and follow the instructions from step (4) to clear the paper jam.
(4) Remove the front cover by lifting it as shown by the arrow.



(5) Lift the protective sheet as indicated by arrow A and rotate the cutter gear in the direction indicated by arrow B while pulling the release lever toward you.
If the auto-cutter blade fails to move despite rotating the cutter gear and the top cover still will not open, pull the release lever toward you and rotate the cutter gear in the opposite direction (indicated by arrow C) until the top cover is able to open.





⚠ **Caution: Do not the touch the cutter motor, as it may still be hot after printing.**

⚠ **Caution: Do not touch the auto cutter, as its blade end is sharp and dangerous.**

⚠ **Caution: When you cannot open Top Cover with rotating Cutter Gear to either direction, call your service provider.**

(6) Open the top cover and remove the jammed paper while holding the printer steady.

⚠ **Caution: When removing paper, remove the paper slowly without pulling it forcibly.**

⚠ **Caution: As the thermal head may be damaged by static electricity, do not touch the thermal head. Also, do not touch the thermal head as it may still be hot after printing.**

(7) Set the paper correctly and carefully close the top cover.

⚠ **Caution: Set the paper correctly. Closing the top cover while the paper is skewed may cause a paper jam or messy printing.**

⚠ **Caution: When closing the top cover, close it securely by pressing around the central position until you hear a clicking sound. If the cover has not locked into place, the printer may not function.**

(8) Turn on the power switch. Also, at this time confirm that the ERROR lamp has turned off.

⚠ **Caution: As printing data cannot be received while the ERROR lamp is on, firmly close the top cover.**

8. Troubleshooting

This section provides solutions for printer malfunctions and print quality problems.

8-1. Problems at Power-on and Other Errors

Symptom	Cause	Solution
Although the power has been turned on, the POWER lamp on the control panel does not light up and the printer does not start.	(1) The power cable is disconnected. (2) The AC adapter is not plugged in.	(1) Connect the power cable. * Refer to 4-3. Connecting the AC Adapter and Cable. (2) Connect the connector of the AC adapter. * Refer to 4-3. Connecting the AC Adapter and Cable.
The ERROR lamp on the control panel lights up and the printer does not work.	(1) There is no paper in the printer . (2) The top cover is not completely closed. (3) The thermal head is excessively hot.	(1) Set the paper. * Refer to 5. Inserting Paper. (2) Close the top cover completely. * Refer to 5. Inserting Paper. (3) Wait for the thermal head to cool down.

8-2. Cutter Problems

Symptom	Cause	Solution
The paper is not cut.	(1) The cutter blade is damaged or worn out. (2) Paper fragments or other foreign matter are stuck around the cutter or the sliding section.	(1) Turn off the power and request repair. (2) Remove the paper fragments or other foreign matter.
The cutter does not return to its correct position.	Paper fragments or other foreign matter are stuck around the cutter or the sliding section.	Remove the paper fragments or other foreign matter.

8-3. Printing Problems

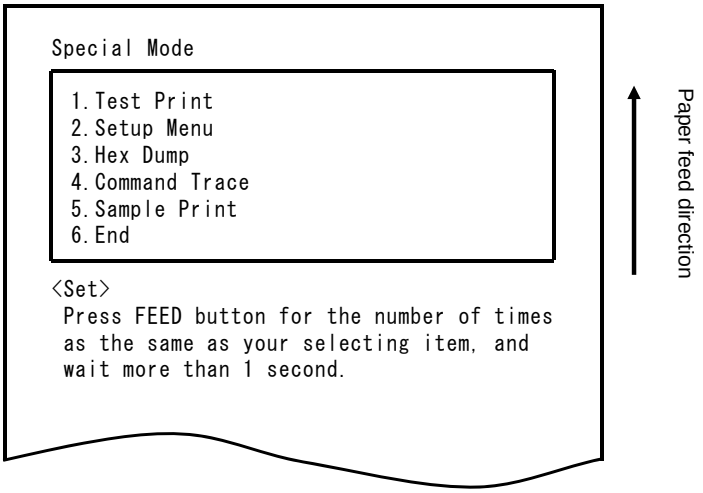
Symptom	Cause	Solution
The printer does not print.	(1) The interface cable is disconnected or broken. (2) The printer setup is not correct.	(1) Connect the interface cable correctly, or replace it. * Refer to 4-1. Connecting the Interface Cable (2) Amend the setting. Example: Baud rate mismatch * Refer to 9-2. Changing the Setup.
Print is too dark or blurred.	(1) Print density setting in the printer setup is incorrect. (2) The thermal head is damaged.	(1) Set the printer at the suitable print density and/or print speed for the print paper. * Refer to 9-2. Changing the Setup. (2) Turn off the power and request repair.
Print is too faint.	(1) Print density setting in the printer setup is incorrect. (2) The thermal head is damaged.	(1) Set the printer at the suitable print density and/or print speed for the print paper. * Refer to 9-2. Changing the Setup. (2) Turn off the power and request repair.
Printing is uneven.	(1) Paper fragments or other foreign matter are stuck to the heating elements of the thermal head. (2) The setting of the printer setup is incorrect. (3) Foreign matter is stuck on the platen roller. (4) The thermal head is damaged.	(1) Check and clean the thermal head. * Refer to 10-3. Cleaning the Thermal Head (2) Set the printer at the suitable print density and/or print speed for the print paper. Amend the setting. * Refer to 9-2. Changing the Setup. (3) Remove the foreign matter from the platen roller. * Refer to 10-2. Cleaning the Platen Roller (4) Turn off the power and request repair.
Vertical marks appear on the printout.	(1) Foreign matter is stuck in or dropped into the paper transport. (2) Foreign matter is stuck on the thermal head. (3) The thermal head is damaged.	(1) Clean the paper transport. * Refer to 10-1. Cleaning Paper Holder and Paper transport (2) Clean the thermal head. * Refer to 10-3. Cleaning the Thermal Head (3) Turn off the power and request repair.

9. Special Mode (Test Print, Setup Menu...)

9-1. Test Print

Ensure that paper is set in the printer. Turn off the power switch on the printer, then turn it on again while pressing the FEED button on the control panel. This outputs the following printout.

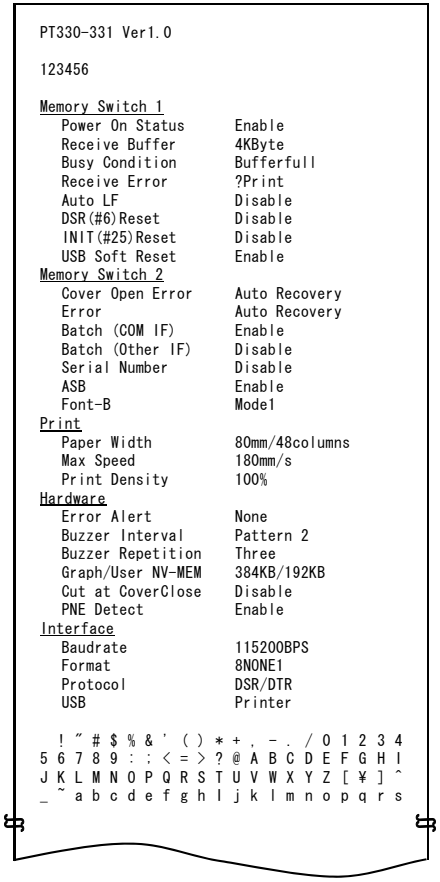
⚠ **Caution: Press and hold the FEED button until the printer starts printing.**


Special Mode
1. Test Print
2. Setup Menu
3. Hex Dump
4. Command Trace
5. Sample Print
6. End
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
Paper feed direction

Then Press the FEED button **once** (select 1. Test Print) to start a test print.

The printer automatically cuts the paper and stops after performing a set amount of printing. To terminate the test print while in progress, press the FEED button. This cuts the paper and terminates printing.

Test Print (Example)


PT330-331 Ver1.0
123456
Memory Switch 1
Power On Status Enable
Receive Buffer 4KByte
Busy Condition Bufferfull
Receive Error ?Print
Auto LF Disable
DSR(#6)Reset Disable
INIT(#25)Reset Disable
USB Soft Reset Enable
Memory Switch 2
Cover Open Error Auto Recovery
Error Auto Recovery
Batch (COM IF) Enable
Batch (Other IF) Disable
Serial Number Disable
ASB Enable
Font-B Mode1
Print
Paper Width 80mm/48columns
Max Speed 180mm/s
Print Density 100%
Hardware
Error Alert None
Buzzer Interval Pattern 2
Buzzer Repetition Three
Graph/User NV-MEM 384KB/192KB
Cut at CoverClose Disable
PNE Detect Enable
Interface
Baudrate 115200BPS
Format 8NONE1
Protocol DSR/DTR
USB Printer
! " # $ % & ' ( ) * + , - . / 0 1 2 3 4
5 6 7 8 9 : ; < = > ? @ A B C D E F G H I
J K L M N O P Q R S T U V W X Y Z [¥] ^
_ ` a b c d e f g h i j k l m n o p q r s

The Firmware Number and Firmware Version vary according to the model. “123456”is an example serial number.

Paper feed direction

9-2. Changing the Setup

This section explains how to setup the printer without using a PC.
Alternatively, when the printer is connected to a Windows PC, the settings can be changed using the utility software on the enclosed CD.
For instructions on installing and using the utility software, refer to the "Installation Guide" and "Utility User's Guide" located in the Manuals folder of the CD.

- Installation Guide : PT330-331_InstallGuide1_en.pdf
- Utility User's Guide : PT330-331_UtilityGuide_en.pdf

The "Installation Guide" and "Utility User's Guide" can also be viewed by loading the CD in your PC's CD drive and selecting "Manuals" on the "Setup" screen that appears.

Setting Example Select a higher print density

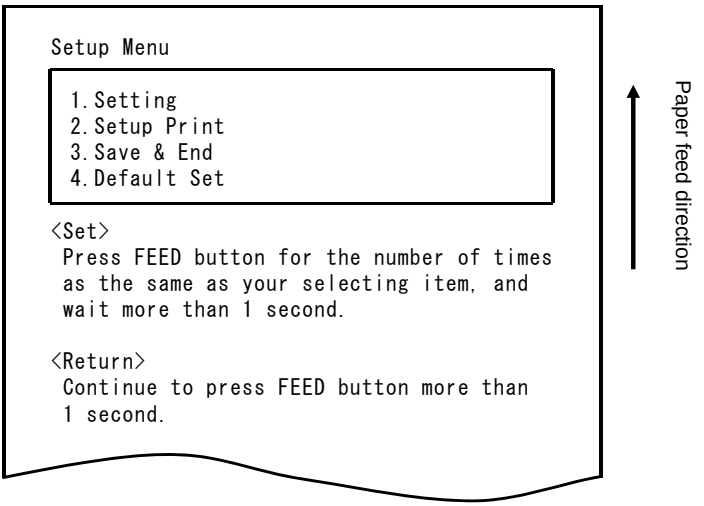
Print Density Changed from 100% to 130%

Perform setup as follows:

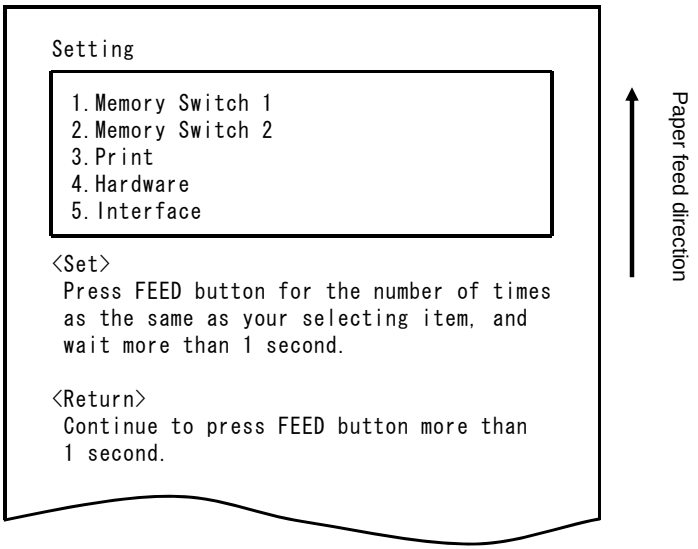
1. Check the printer state prior to setting.
(1) The power is off.
(2) The paper roll is set.
(3) The cover is closed.

2. Ensure that paper is set in the printer. Turn off the power switch on the printer, then turn it on again while pressing the FEED button on the control panel. This outputs the printout shown in section 9-1.

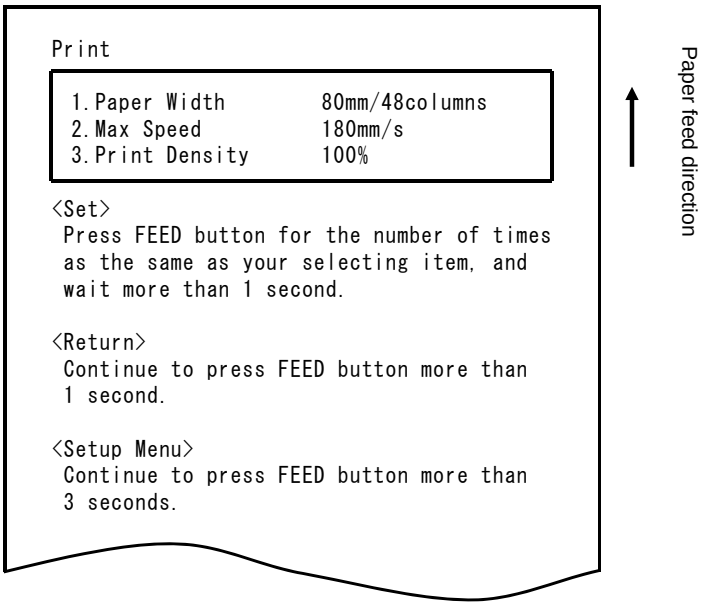
Then Press the FEED button **twice** (to select 2. Setup Menu) enters setup mode and prints the following menu.


Setup Menu
1.Setting
2.Setup Print
3.Save & End
4.Default Set
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
<Return>
Continue to press FEED button more than 1 second.
Paper feed direction

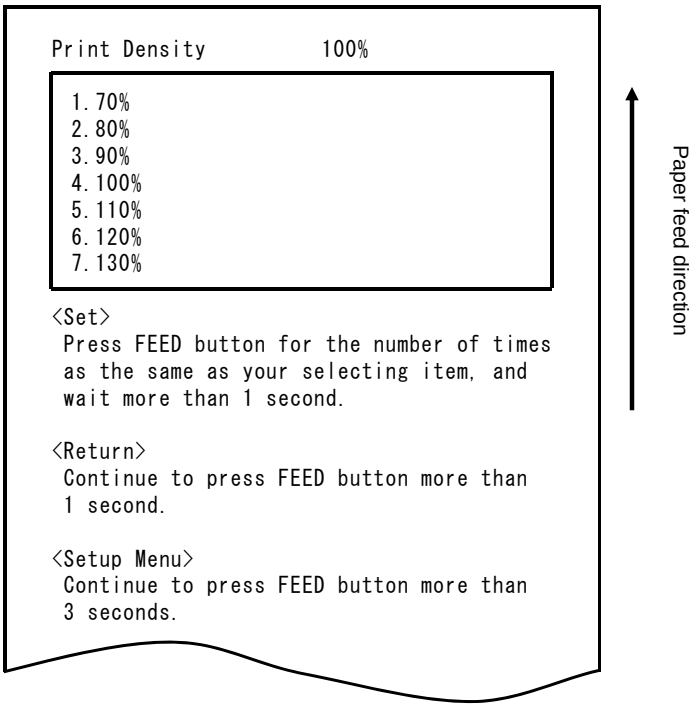
3. **Then Press** the FEED button **once** (to select 1. Setting) enters setting mode and prints the following setting groups.


Setting
1. Memory Switch 1
2. Memory Switch 2
3. Print
4. Hardware
5. Interface
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
<Return>
Continue to press FEED button more than 1 second.
Paper feed direction

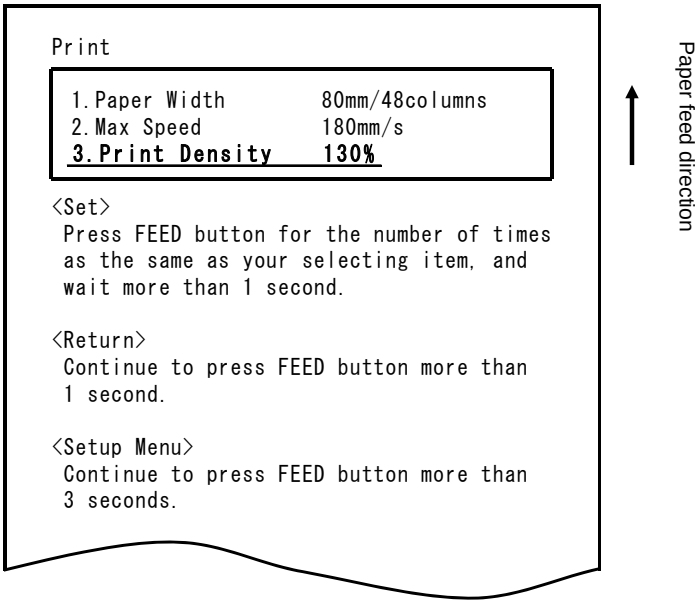
4. **Then Press** the FEED button **three times** (to select 3. Print) selects the Print group and prints the following setting options.


Print
1. Paper Width 80mm/48columns
2. Max Speed 180mm/s
3. Print Density 100%
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
<Return>
Continue to press FEED button more than 1 second.
<Setup Menu>
Continue to press FEED button more than 3 seconds.
Paper feed direction

5. **Then Press** the FEED button **three times** (select 3.Print Density) selects the Print Density setting and prints the following Print Density settings.


Print Density 100%
1.70%
2.80%
3.90%
4.100%
5.110%
6.120%
7.130%
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
<Return>
Continue to press FEED button more than 1 second.
<Setup Menu>
Continue to press FEED button more than 3 seconds.
Paper feed direction

6. Then Press the FEED button **seven times** (to select 7. 130%) returns to the Print settings group.
Changed items are displayed in bold and underlined.


Print
1. Paper Width 80mm/48columns
2. Max Speed 180mm/s
3. Print Density 130%
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
<Return>
Continue to press FEED button more than 1 second.
<Setup Menu>
Continue to press FEED button more than 3 seconds.
Paper feed direction

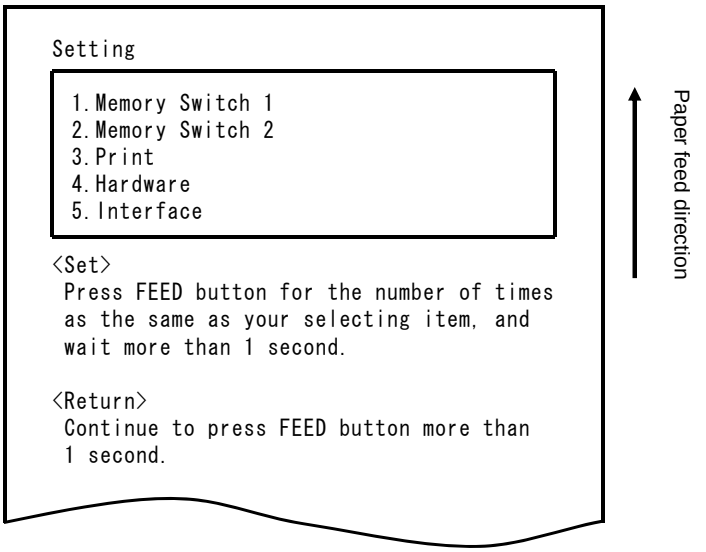
To exit to the previous level (<Return>)
⇒ Go to Section 7-1

To exit directly to the setup menu (<Setup Menu>)
⇒ Go to Ssection 7-2

7-1. Exiting to Previous Level

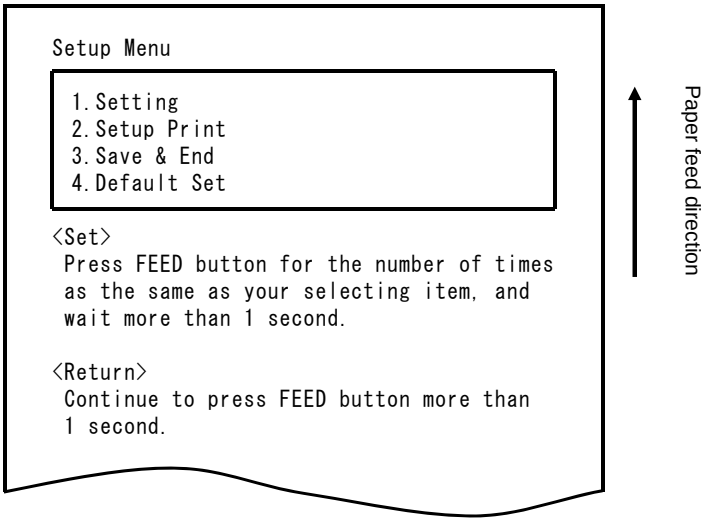
Hold the FEED button down for **1 second or more** until the buzzer sounds twice.
Release the FEED button after the buzzer sounds.

This returns to the previous level and prints the Setting group options.


Setting
1. Memory Switch 1
2. Memory Switch 2
3. Print
4. Hardware
5. Interface
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
<Return>
Continue to press FEED button more than 1 second.
Paper feed direction

Hold down the FEED button again for **1 second or longer** until the buzzer sounds twice. Release the FEED button after the buzzer sounds.

This returns to the previous level and prints the Setup Menu.

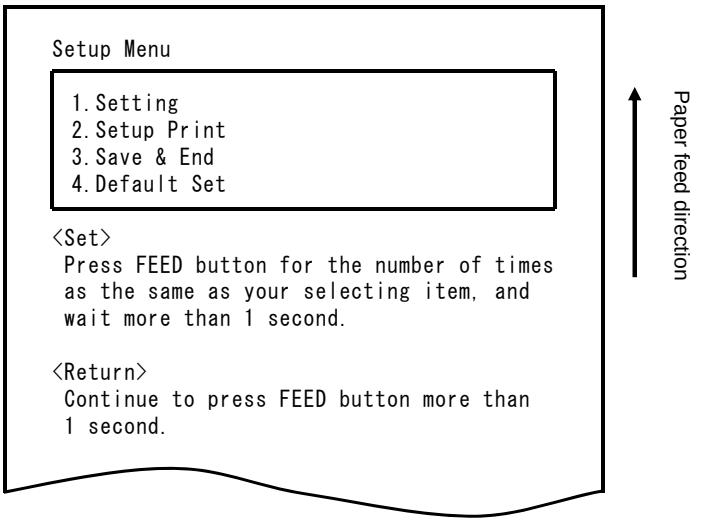

Setup Menu
1. Setting
2. Setup Print
3. Save & End
4. Default Set
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
<Return>
Continue to press FEED button more than 1 second.
Paper feed direction

Proceed to step 8.

7-2. Exiting Directly to Setup Menu

Hold the FEED button down for **3 seconds or more** to return to the Setup Menu.

Although holding down the FEED button for a long time causes the buzzer to sound twice after 1 second, ignore this and continue to press the FEED button.
After about 3 seconds, the buzzer sounds three times and the following menu is printed.


Setup Menu
1. Setting
2. Setup Print
3. Save & End
4. Default Set
<Set>
Press FEED button for the number of times as the same as your selecting item, and wait more than 1 second.
<Return>
Continue to press FEED button more than 1 second.
Paper feed direction

Proceed to step 8.

8. **Pressing** the FEED button **three times** (to select 3. Save & End) saves the settings, cuts the paper, and then exits setup mode.

⚠ **Caution: If the power switch of the printer is turned off without selecting "Save & End", any changes made will not be saved.**

● Checking the Settings

To check that the settings have been applied, follow the instructions in section 9.1 to perform a test print.

The test print includes a list of printer settings. Use this to confirm your changes.

9-3. Setup Settings

Setting Groups

Settings Group		Description
1	Memory Switch 1	Memory Switch 1 settings
2	Memory Switch 2	Memory Switch 2 settings
3	Print	Print settings
4	Hardware	Hardware settings
5	Interface	Serial and USB interface settings (This group is not displayed on printers with a LAN interface.)

Setting Items and Detailed Setting Items

(Note) Setup items and the default values depend on the printer model and/or area.

(1) Memory Switch 1 Group

Item		Description	Setting Value	
1	Power On Status	Specifies Power ON notification.	1 2	Enable Disable
2	Receive Buffer	Specifies receiver buffer size.	1 2	45bytes 4Kbytes
3	Busy Condition	Sets the printer as BUSY (data reception not available).	1 2	Buffer full Offline/Buffer full
4	Receive Error	Specifies what to do when a receive error occurs using the serial interface.	1 2	?Print Ignore
5	Auto LF	Specifies whether the CR code generates an automatic line feed.	1 2	Enable Disable
6	DSR(#6)Reset	Specifies whether receiving DSR (#6) via the serial interface triggers a hardware reset.	1 2	Enable Disable
7	INIT(#25)Reset	Specifies whether receiving INIT (#25) via the serial interface triggers a hardware reset.	1 2	Enable Disable
8	USB Soft Reset	Specifies whether a USB Soft Reset triggers a hardware reset when using printer class USB.	1 2	Enable Disable

(2) Memory Switch 2 Group

Item		Description	Setting Value	
1	Cover Open Error	Recovery method for Cover Open Error during print	1 2	Auto Recovery Recovery by CMND
2	Error	What to do at power on or after recovery from error "Auto Recovery": Perform auto recovery to enable data reception. "Recovery by CMND": Discard any received data until a reset command is received.	1 2	Auto Recovery Recovery by CMND
3	Batch (COM IF)	Specifies whether to use batch printing for the serial interface	1 2	Enable Disable
4	Batch (Other IF)	Specifies whether to use batch printing for the USB or LAN interface	1 2	Enable Disable
5	Serial Number	Specifies iSerial Number notification for USB "Disable": Returns “0” as the iSerial Number. "Enable": Returns the manufacturing serial number as the iSerial Number	1 2	Enable Disable
6	ASB	Specifies whether to enable the automatic status transmission function (ASB: Automatic Status Back)	1 2	Enable Disable
7	Font-B	Specifies the number of columns for font B (horizontal x vertical) "Mode1" 10x24 "Mode2" 9x24	1 2	Mode1 Mode2

(3) Print Group

Item		Description		Setting Value
1	Paper Width	Paper width and number of characters per line	1 2 3 4	80mm/48columns 80mm/42columns 58mm/35columns 58mm/32columns
2	Max Speed	Maximum print speed The maximum for printing ladder barcodes and two-dimensional codes is 120mm/s.	1 2 3 4 5 6 7 8 9	100mm/s 110mm/s 120mm/s 130mm/s 140mm/s 150mm/s 160mm/s 170mm/s 180mm/s
3	Print Density	Print density The smaller the value the lower the print density. The higher the value the higher the print density.	1 2 3 4 5 6 7	70% 80% 90% 100% 110% 120% 130%

(4) Hardware Group

Item		Description	Setting Value	
1	Error Alert ***1**	Whether to sound a buzzer when an error occurs "None": Does not beep. "One Time": Beeps four times. "Continuous": Beeps continuously.	1 2 3	None One Time Continuous
2	Buzzer Interval ***2**	The buzzer tone to use during printing The buzzer beeps in the following cases during printing: • FEED button pressed while cover open • Buzzer command received (ESC p 03h t1 t2 t3)	1 2 3 4 5	Pattern 1 Pattern 2 Pattern 3 Pattern 4 Pattern 5
3	Buzzer Repetition ***2**	The number of buzzer beeps during printing Zero specifies no buzzer. The buzzer beeps in the following cases during printing: • FEED button pressed while cover open • Buzzer command received (ESC p 03h t1 t2 t3)	1 2 3 4 5 6	Zero One Two Three Four Five
4	Graph/User NV-MEM	NV graphic memory size and user NV memory size Specifies the size of the registration area for graphics images and NV bit images, and the size of the area for storing any user data.	1 2 3 4	384KB/192KB 448KB/128KB 512KB/64KB 576KB/0B
5	Cut at Cover Close	Whether to trigger the cutter when the cover is closed.	1 2	Enable Disable
6	PNE Detect	Whether to notify when near the paper end	1 2	Enable Disable

*1 "Error Alert"

The operation when a "continuous" buzzer tone is output is as follows:
(Note) To stop the buzzer during continuous beeping, press the FEED button.

- Recoverable Error (Excluding Paper Near End)
  Continuous beeping of 500mSecON/200mSecOFF
- Hardware Error
  Continuous beeping of 1000mSecON/500mSecOFF

*2 "Buzzer Interval"

The buzzer patterns are as follows:

- Pattern 1 40msON / 120msOFF
- Pattern 2 140msON / 140msOFF
- Pattern 3 200msON / 200msOFF
- Pattern 4 10msON / 50msOFF
- Pattern 5 30msON / 50msOFF

(5) Interface Group

Item		Description	Setting Value	
1	Baud rate	Baud rate for the serial interface	1 2 3 4 5 6 7	2400BPS 4800BPS 9600BPS 19200BPS 38400BPS 57600BPS 115200BPS
2	Format	Data format for the serial interface	1 2 3 4 5	7EVEN1 7ODD1 8NONE1 8ENEN1 8ODD1
3	Protocol	Buffer control protocol for the serial interface	1 2	DSR/DTR XON/XOFF
4	USB	Class for USB interface	1 2	Printer V-COM

(Note) This group is not displayed for printers with a LAN interface.

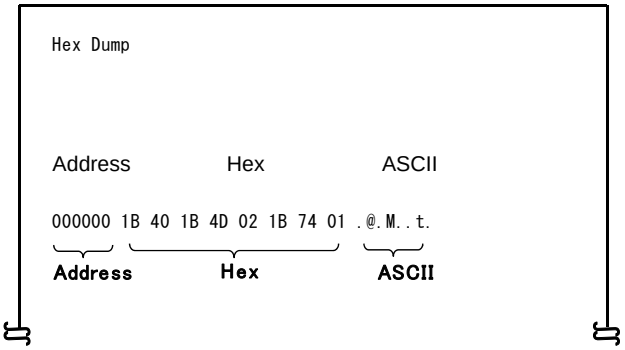
9-4. HEX Dump

Ensure that paper is set in the printer. Turn off the power switch on the printer, then turn it on again while pressing the FEED button on the control panel. This outputs the printout shown in section 9-1.

Pressing the FEED button **three times** (select 3. Hex Dump) enters HEX dump mode.

This mode prints all the data sent to the printer as hex code. It is useful for checking whether the control codes being sent to the printer by the PC program are correct.
To clear this mode, turn the power switch off and on again.

HEX Dump Print (Example)



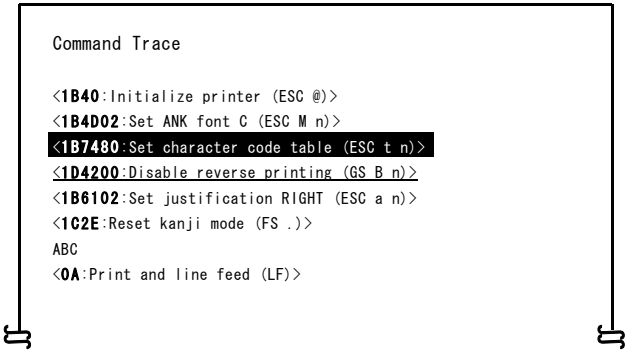
9-5. Command Trace

Ensure that paper is set in the printer. Turn off the power switch on the printer, then turn it on again while pressing the FEED button on the control panel. This outputs the printout shown in section 9-1.

Pressing the FEED button **four times** (select 4. Command Trace) enters command trace mode.

This mode prints all the data sent to the printer in ASCII format (with ESC/POS command explanations). It can be used to analyze the ESC/POS commands sent to the printer by the PC program.
To clear this mode, turn the power switch off and on again.

Command Trace Print (Example)



a. Undefined commands or commands with abnormal command parameters are treated as errors and printed with background and foreground reversed.
b. Meaningless and unnecessary commands are printed with an underline as a warning.
c. Command codes are printed in bold.

9-6. Sample Print

Ensure that paper is set in the printer. Turn off the power switch on the printer, then turn it on again while pressing the FEED button on the control panel. This outputs the printout shown in section 9-1.

Pressing the FEED button **five times** (select 5. Sample Print) enters sample print mode.

This mode prints an explanation of FEED button operation, performs a paper cut, and then prints sample patterns. (The FEED button explanation is only printed at the first time.)

" Press FEED button.

Short : Next pattern

Long : Same pattern"

After printing, pressing the FEED button briefly (less than one second) prints the following samples, one at a time.

* "Receipt" → "Coupon" → "Bar Code" → "Receipt" in turn. (Printing pauses after each sample. Press the FEED button to print the next sample.)

Pressing the FEED button for a long time (one second or longer) prints the previous sample again.

To clear sample print mode, turn the power switch off and on again.

Sample print mode performs a cut after each sheet is printed.

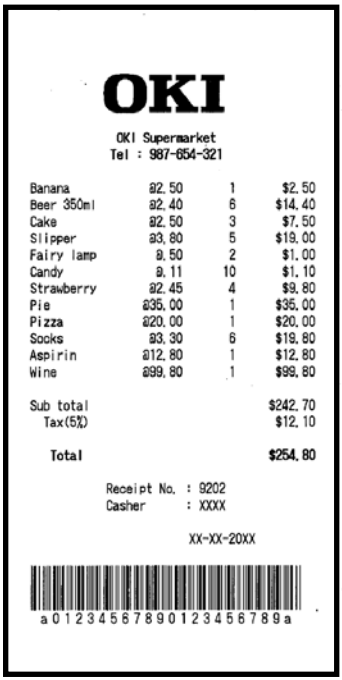
Sample print mode uses the 80mm or 58mm pattern depending on the paper width setting in setup.

If a recoverable error occurs, the sample print resumes after recovery.

The following page shows examples printouts.

<Printing Results of Sample Print, 80mm Pattern>

"Receipt" Pattern



OKI

OKI Supermarket
Tel : 987-654-321

Banana	@2.50	1	$2.50
Beer 350ml	@2.40	6	$14.40
Cake	@2.50	3	$7.50
Slipper	@3.80	5	$19.00
Fairy lamp	@.50	2	$1.00
Candy	@.11	10	$1.10
Strawberry	@2.45	4	$9.80
Pie	@35.00	1	$35.00
Pizza	@20.00	1	$20.00
Socks	@3.30	6	$19.80
Aspirin	@12.80	1	$12.80
Wine	@99.80	1	$99.80
Sub total			$242.70
Tax(5%)			$12.10
Total			**$254.80**

Receipt No. : 9202
Casher : XXXX

XX-XX-20XX

a0123456789012345678 9a

"Coupon" Pattern

OKI

Coupon 20$ OFF !!

NO.1234567890

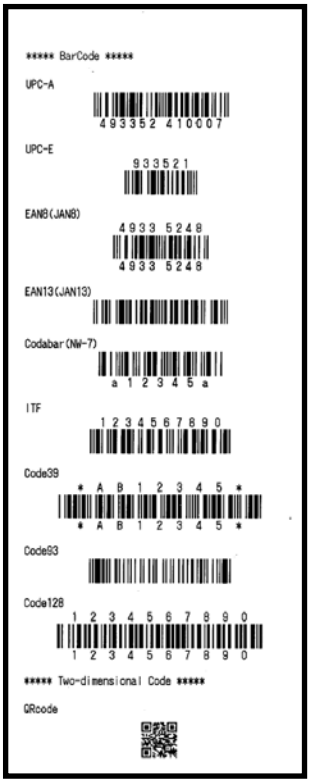
Save 20 dollars on Grape Squash of OKI company.

Issue date : XX.XX.20XX

OKI will give a REAL LIFE to you

a0123456789012345678 9a

"Bar Code" Pattern



<Printing Results of Sample Print, 58mm Pattern>

"Receipt" Pattern

"Barcode" Pattern

OKI
Coupon 20$ OFF!!
Save 20 dollars on Grape Smash of OKI company.
Issue date : XX.XX.20XX
OKI will give a REAL LIFE to YOU
NO.1234567890

"Coupon" Pattern

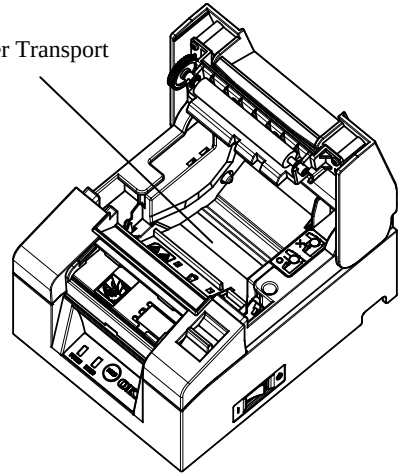
10. Regular Cleaning

The print quality may be impaired by paper particles, dust, or other material. To avoid this problem, remove any paper particles or dust from the paper holder, the paper transport, the platen roller, and the thermal head as described below.
Perform cleaning every six months.

10-1. Cleaning Paper Holder and Paper Transport

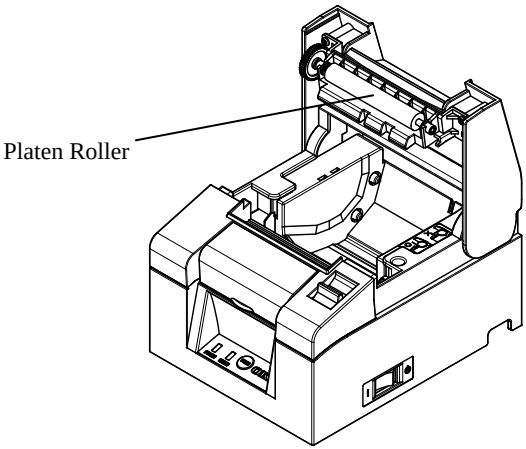
(1) Be sure to turn off the printer power.
(2) Open the top cover.
(3) Wipe off any dust, paper particles, glue, or other foreign material from the paper holder and paper transport using a soft, dry cloth.

Paper Holder and Paper Transport



10-2. Cleaning the Platen Roller

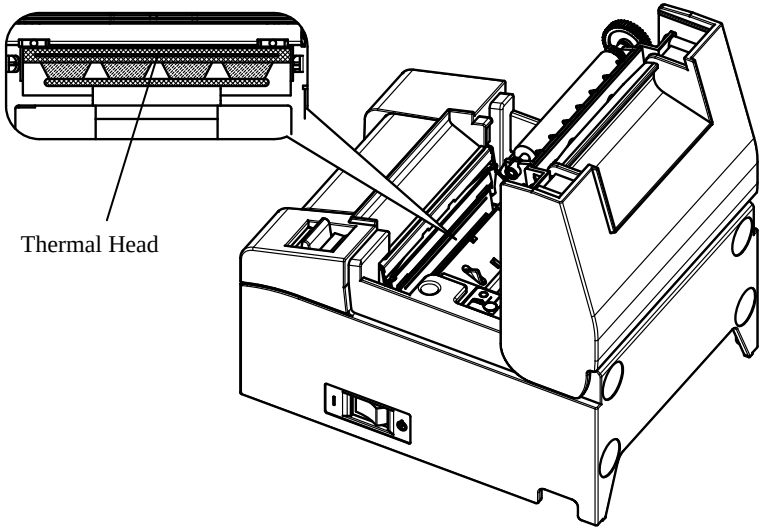
(1) Be sure to turn off the printer power.
(2) Open the top cover.
(3) Wipe off any dust, paper particles, glue, or other foreign material from the platen roller using a soft, dry cloth.



⚠ **Caution: Do not damage or dent the platen roller.**
Dents on the platen roller will cause incomplete printing and/or line feed failure.

10-3. Cleaning the Thermal Head

(1) Be sure to turn off the printer power.
(2) Open the top cover.
(3) Using an alcohol solvent, remove black paper particles and other residue from the surface of the thermal head.



⚠ **Caution: The thermal head can easily be damaged. Clean it carefully using a soft cloth to avoid any damage.**

⚠ **Caution: The thermal head is still hot immediately after printing. Leave it to cool for about ten minutes before cleaning.**

⚠ **Caution: The thermal head may be damaged by static electricity. Take care to avoid exposing it to static electricity.**

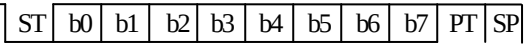
⚠ **Caution: Wait until alcohol from the cleaning solvent has thoroughly dried before turning on the printer power.**

⚠ **Caution: Use only alcohol or isopropyl alcohol solvents.**

11. Interface

11-1 Serial Interface

(1) Transmission Interface Specifications

Transmission Method	Asynchronous
Line Type	Full duplex
Input/Output Circuit	Input: MAX211 Equivalent Output: MAX211 Equivalent
Baud Rate	2400, 4800, 9600, 19200, 38400, 57600, 115200BPS (Setup Settings)
Transmission Code Type	7 or 8 bits
Transmission Code Format	Start bits: 1 bit Stop bits: 1 bit Data bits: 7 or 8 bits (Setup Settings) Parity: NONE, ODD, EVEN (Setup Settings) Mark(1)  Space(0)
Transmission Sequence	LSB to MSB
Transmission Code	JIS code
Error Control	Parity check (Setup Settings)
Connection Line Length	Max. 15m: (When power is supplied from the power connector) Max. 2m: (When power is supplied from the interface connector)
Protocol	DSR/DTR, XON/XOFF (Setup Settings)

(2) Serial Interface Connector

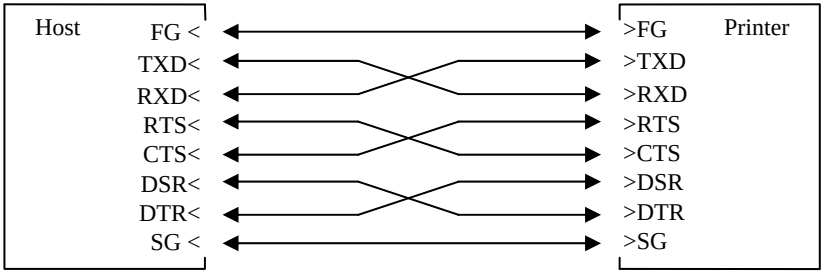
Pin No.	Signal Name	Direction	Signal Line Name
1	SG	-	Signal Ground
2	TXD	Output	Transmit Data
3	RXD	Input	Receive Data
4	RTS	Output	Request to Send
5	CTS	Input	Clear to Send
6	DSR	Input	Data Set Ready
7	SG	-	Signal Ground
8~12	N.C	-	No Connection
13	SG2	-	+24V Ground
14	SG2	-	+24V Ground
15~17	N.C	-	No Connection
18	+24V	-	Mechanical Drive Power
19	+24V	-	Mechanical Drive Power
20	DTR	Output	Data Terminal Ready
21~24	N.C	-	No Connection
25	INIT	Input	Forcible Reset Signal

⚠ Caution: When the power is supplied from the power connector, ensure the pins shaded in grey are not connected.

⚠ Caution: Use a lock screw with an imperial thread on the connector.

(3) Connection Cable

The connection setup shown in the following figure is recommended.



⚠ **Caution: Supplying power from the interface connector is prohibited.**

11-2. USB Interface

(1) Type-B Connector: 4 Pins

Pin No.	Signal Name	Direction	Signal Line Name
1	VBUS	Input	VBUS
2	D-inB	Input/Output	D-
3	D+inB	Input/Output	D+
4	SG	-	Signal Ground

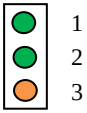
⚠ **Caution: Use a shielded USB cable.**

11-3. LAN Interface

(1) LAN Interface Connector

Pin No.	Signal Name	Direction	Signal Line Name
1	TX+	Output	Output data
2	TX-	Output	Output data
3	RX+	Input	Input data
4	N.C	-	-
5	N.C	-	-
6	RX-	Input	Input data
7	N.C	-	-
8	N.C	-	-

(2) LED

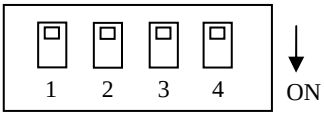


No.	Meaning	Description
1	10BASE-T Link	Lights up when the connection is recognized as 10BASE-T
2	100BASE-TX Link	Lights up when the connection is recognized as 100BASE-TX
3	Status	Lights up for a period of time (50msec) when packets are received

(3) DIP Switches

⚠ Caution: These switches are for maintenance. During normal usage, leave them all in the OFF state.

No.	ON	OFF
1	-	Off (Fixed)
2	Settings Information Initialization	-
3	Settings Information	-
4	Self-diagnosis Print	-



Procedures for Settings Initialization

1) Turn off the printer power.
2) Set No.2 DIP switch to ON.
3) Turn on the printer power. Initialization takes about five seconds.
4) Turn off the printer power.
5) Set No.2 DIP switch to OFF.

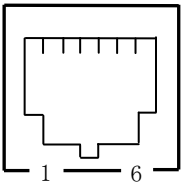
Procedures for Test Print from LAN Board

1) Turn off the printer power.
2) Set No.3 and No.4 DIP switches to ON.
3) As soon as the printer power is turned on, a test print is performed.
4) Turn off the printer power.
5) Set No.3 and No.4 DIP switches to OFF.

⚠ Caution: Be careful with DIP switch operations.

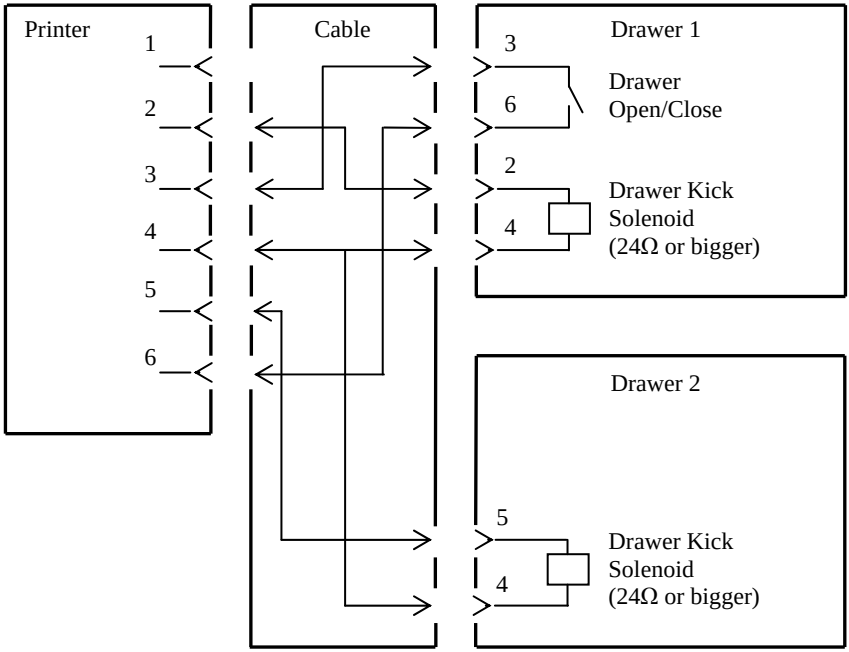
11-4. Drawer Kick Connector

Pin No.	Signal Name	Direction	Signal Line Name
1	FG	-	Frame Ground
2	*DRD1	Output	Drawer Kick Drive Signal 1
3	DRSNS1	Input	Drawer Sense Signal 1
4	+24V	-	Drive Power
5	*DRD2	Output	Drawer Kick Drive Signal 2
6	SG	-	Signal Ground



<Connecting side>

<Connection>



⚠ Caution: The drawer connection cable should be of the shielded type.

⚠ Caution: Simultaneous drive from the two drives is not available.

⚠ Caution: Specify the ON time and OFF time (t1 and t2) for the drawer using the pulse generation command (ESC p m t1 t2).

⚠ Caution: Set the drive duty cycle for the drawer in accordance with the following formula: ON time/(ON time + OFF time) ≤ 0.2

⚠ Caution: Always use printer power (connector pin 4) for the drawer power.

⚠ Caution: Use a drawer kick solenoid with a resistance value of at least 24Ω. If it is under 24Ω, the solenoid may be damaged by excess current.

⚠ Caution: This product uses a special-purpose modular connector for the cash drawer and customer display connector. Do not attempt to use other types of connectors such as public telephone connectors.

11-5. Power Specifications

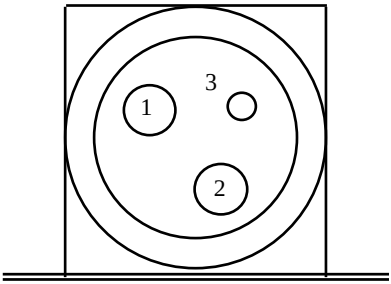
(1) Rated Input Voltage: 100-240V, 50-60Hz
(2) Rated Input Current: 1.1A
(3) Operating Voltage: DC24V±10%
(4) Power Consumption: During standby:
3.0W or less/0.1A on average (Dual Interface)
4.5W or less/0.1A on average (LAN Interface)

During operation: About38W/1.5A on average
(at 24V, 25°C, print density setting 100%, paper width 80mm, print duty 9%)

Note: Drawer Kick Drive Current: Max. 1A
However, do not operate two drawer kick at the same time.

Power Connector Pin Assignment

Pin No.	Signal Name
1	+24V
2	SG
3	N.C



⚠ Caution: Use the specified AC adapter for the power supply.

⚠ Caution: If our AC adapter is not used (power supply is supplied by the user), problems such as bad print quality, electromagnetic interference, or circuit noise may occur. In such cases, take note of the following points:

- **Use an AC adapter whose capacity corresponds to the printing rate that will actually be used.**
- **Ensure in advance that there are no problems such as static electricity, electromagnetic interference, circuit noise, etc.**

12. Specifications

12-1. General Specifications

(1) Printing Method: Direct Line Thermal Printing

(2) Print Speed: Maximum 180 mm/s (Monochrome only)

(3) Print Resolution: 8dot/mm (0.125mm)

(4) Relationship between Number of Print Column and Character Size

Body face ((Width)x(Height) dot)

	Paper width: 58mm	
	32 column printing	35 column printing
ANK: Font A	32 columns: 12x24	35 columns: 12x24
ANK: Font B	38 columns: 10x24 42 columns: 9x24	42 columns: 10x24 46 columns: 9x24
ANK: Font C	48 columns: 8x16	52 columns: 8x16
ANK: Font A Extension Font	32 columns: 12x24	35 columns: 12x24
ANK: Font B Extension Font	38 columns: 10x24 42 columns: 9x24	42 columns: 10x24 46 columns: 9x24

Body face ((Width)x(Height) dot)

	Paper width: 80mm	
	42 column printing	48 column printing
ANK: Font A	42 columns: 12x24	48 columns: 12x24
ANK: Font B	51 columns: 10x24 56 columns: 9x24	57 columns: 10x24 64 columns: 9x24
ANK: Font C	64 columns: 8x16	72 columns: 8x16
ANK: Font A Extension Font	42 columns: 12x24	48 columns: 12x24
ANK: Font B Extension Font	51 columns: 10x24 56 columns: 9x24	57 columns: 10x24 64 columns: 9x24

(5) Character Sets

Alphanumeric (95), Extension Graphic (128×20 Page), International Character (48), Special Character (845)

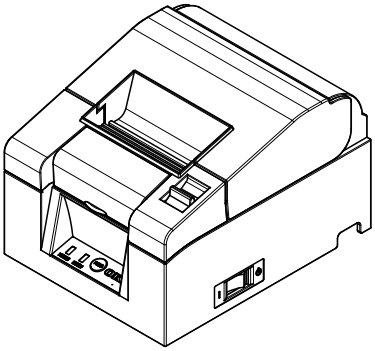
(6) Character Size

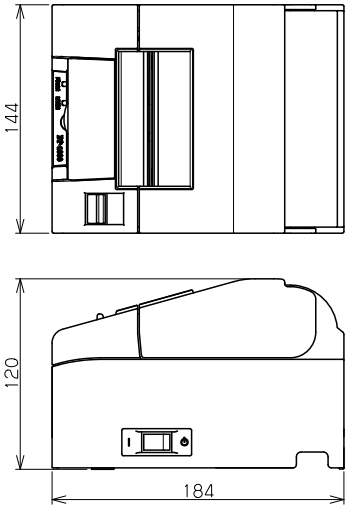
	Body face		Letter face	
	(Width)x(Height) dot	(Width)x(Height) mm	(Width)x(Height) dot	(Width)x(Height) mm
ANK: Font A	12 x 24	1.5 x 3.0	11 x 22	1.375 x 2.75
ANK: Font B	10 x 24 9 x 24	1.25 x 3.0 1.125 x 3.0	9 x 17 9 x 17	1.125 x 2.125 1.125 x 2.125
ANK: Font C	8 x 16	1.0 x 2.0	8 x 13	1.0 x 1.625
ANK: Font A Extension Font	12 x 24	1.5 x 3.0	12 x 24	1.5 x 3.0
ANK: Font B Extension Font	10 x 24 9 x 24	1.25 x 3.0 1.125 x 3.0	9 x 22 9 x 22	1.125 x 2.75 1.125 x 2.75

(Note) Print Column, Character Size and Character Sets depend on the printer model and/or area.

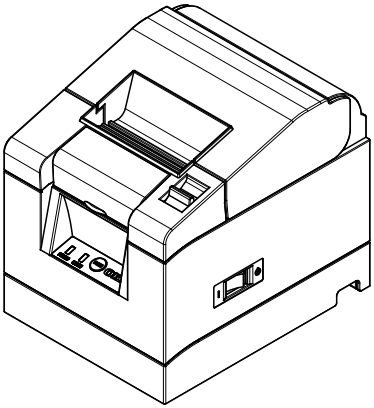
(7) Outline View

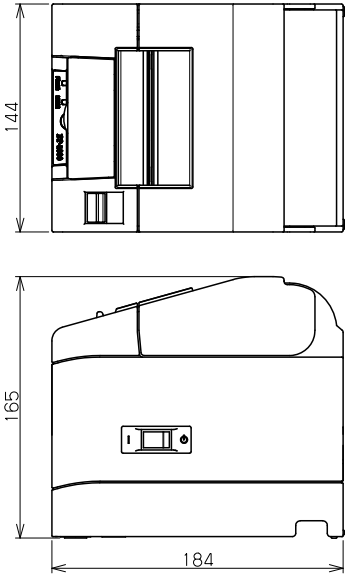
Standard Model





Built-in Power Supply Model





12-2. Cutter Specifications

(1) Cutting Method: Partial cut (the paper remains connected at one point)

⚠ **Caution: Do not use the cutter continuously at a rate exceeding 10 cuts per minute (1 cut per 6 seconds or more). Excessive use may cause a malfunction.**

12-3. Paper Roll Supply Specifications

(1) Loading Method: Rolls are loaded manually.
(2) Paper Near End: Detected when the remaining paper length is inadequate.

⚠ **Caution: Core diameter φ18mm is supported.**

12-4. Interface Specifications

(1) Serial (RS-2332C)
(2) USB (USB 2.0 Full-speed)
(3) LAN (10BASE/100BASE-T)

12-5. Environment Specifications

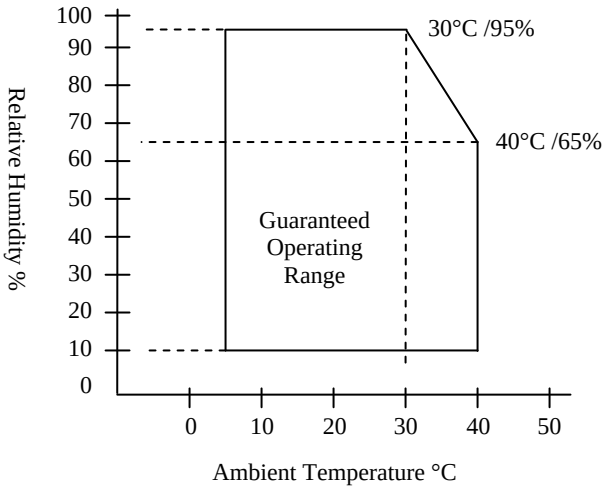
(1) Temperature

Operating	Operation Guaranteed at:	0°C - 40°C
	Print Quality Guaranteed at:	5°C - 35°C
Non-operating		-5°C - 60°C
Transportation or storage (packaging)		-20°C - 60°C

(2) Humidity

Operating	Operation Guaranteed at:	10%-95%RH (no condensation)
	Print Quality Guaranteed at:	10%-85%RH (no condensation)
Non-operating		8%-95%RH (no condensation)
Transportation or storage (packaging)		5%-95%RH (no condensation)

(3) Maximum Wet Bulb Temperature 29°C or less



12-6. Reliability Specifications

(1) Printer Life 20 million line-feed
(When the recommended paper of 75μm is used)

(2) Head Life Running Life: 100km
(When the recommended paper of 75μm is used)
Pulse Life: 100 million pulses
(When the recommended paper of 75μm is used)

(3) Cutter Life
Paper Thickness 75μm: 1.5 million cuts
(When the recommended paper of 75μm is used)
65μm/85μm: 1.0 million cuts

13. Usage Precautions

13-1. Paper Related Precautions

(1) High printing rates may cause blurred printing. Choose a suitable printing rate to avoid blurring. Alternatively, set a suitable combination of print speed and print density to avoid blurring.
(Refer to 9 Special Mode: 9-2. Changing the Setup.)

(2) Printing characters from a non-standard character set in a thin serif or similar font will result in the characters appearing very faint. Use a bold sans serif font.

(3) To achieve quality printing without uneven pitch (expansion or contraction), feed the paper 1mm (8 dots) or more when restarting printing or after cutting the paper.

(4) In sequential printing, slow data transfer may cause white lines to run across the print, as printing and pausing are repeated alternately. If print quality has priority, use the Batch Print mode ("Batch (COM IF)", "Batch (OTHER IF)").
(Refer to 9 Special Mode: 9-2. Changing the Setup.)

(5) The top margin can be set to either 12mm or 3mm by a command. If the top margin is set to 3mm, be sure to remove the printed paper each time the printing and cutting operation is completed as rollback of paper takes place before printing. If printed and cut paper is not removed, the partial cut section may be torn or the cut surface may be folded causing a paper jam. Also, use at least 30 mm of paper for each transaction.

(6) Setting a high value for print density (110 % and over) can result in blurred or uneven printing at low temperatures, depending on the printing pattern. If print quality has priority, print at a lower speed.
(Refer to 9 Special Mode: 9-2. Changing the Setup.)

(7) Do not switch from narrower paper to wider paper (e.g. 58mm to 80mm) when printing is in progress. When using narrow-width paper, a part of the thermal head may directly come in contact with the platen roller without any paper present. This causes the head to wear down, resulting in poor printing quality. In addition, as the cutter blade also works at sections without paper, the cutter blade may wear down, resulting in a bad cut. Do not change paper width when printing is in progress.

(8) If the paper has been left in the printer for a long time, it may deform and cause faint printing. Therefore, if the paper has been left for a long time, feed the paper forward by 20-30mm before printing.
(9) If non-recommended paper is used, print quality and/or the thermal head life cannot be guaranteed. In particular, use of paper containing “Na+, K+, or Cl-” may significantly shorten the life span of the thermal head.
(10) Using a non-recommended AC adapter may cause blurred and/or uneven printing, so use only the recommended adapter.
(11) The paper may get marked during paper changing or when the top cover is shut, so feed the paper forward by 20-30mm before printing.

13-2. Cutter Related Precautions

(1) Do not use the cutter continuously at a rate exceeding 10 cuts per minute (1 cut per 6 seconds or more). Excessive use may cause a malfunction.
(2) Do not remove paper while it is still being cut. Doing so may cause problems such as a paper jam.
(3) If the top margin is set at 3mm, be sure to remove the printed paper each time the printing and cutting operation is completed as roll back of the printer paper takes place before printing. Not doing so may cause problems such as a paper jam.

13-3. Barcode/2D Code Printing Precautions

(1) When using thick paper, the printing speed and density should be adjusted and readability should also be checked before using the printer as thick paper may cause blurring depending on the usage environment and the humidity.
(Refer to 9 Special Mode: 9-2. Changing the Setup.)
(2) For 2D codes, adjust the printing speed and density to obtain a good recognition rate. As readability varies depending on the module width, print density, ambient temperature, type of thermal roll paper, and reader performance, check this before using the printer.
(Refer to 9 Special Mode: 9-2. Changing the Setup.)

(3) If a barcode is printed at the top of the printer paper when it is first fed, or at the bottom when paper feeding is completed, readability should be checked as accuracy in paper feeding may become unstable.

13-4. USB Interface Usage Precautions

(1) Connect the printer directly to the host computer.
(2) Be sure to turn on the printer power before printing.
(3) If an error occurs during printing, recover the printer from the error, and then retry printing.
(4) Do not turn off the printer or disconnect the USB cable while printing is in progress. Using the host computer to set Stand-by mode, Sleep mode, Suspend mode or Pause mode is not recommended.
If the printer does not work properly even after implementing the above, try re-connecting the USB cable or turning on the printer power again. If the printer still does not print properly, restart the host computer.

13-5. Installation Precautions

(1) Use the printer indoors only. Outdoor usage may cause printer malfunction due to dust or other factors.
(2) When connecting a cable to the printer or shifting the position of the printer, perform the operation while holding the middle cover of the printer at the sides using both hands. If you perform the operation holding the top cover, the top cover may open.

13-6. Modular Type Connector Usage Precautions

(1) This product uses a special-purpose modular connector for the cash drawer and customer display connector. Do not attempt to use other types of connectors such as public telephone connectors.

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